MOROZOV, A.P.; NIKISHINA, A.V., inshener.

Using a compressing-expanding scheme in long distance communication channels. Vest.sviazi 14 no.11:9 N '54. (MLRA 8:1)

1. Starshiy inzhener Leningradskoy meshdugorodnoy telefonnoy stantsii (for Morozov)
(Telephone stations)

1ST AND 2ND ORDERS

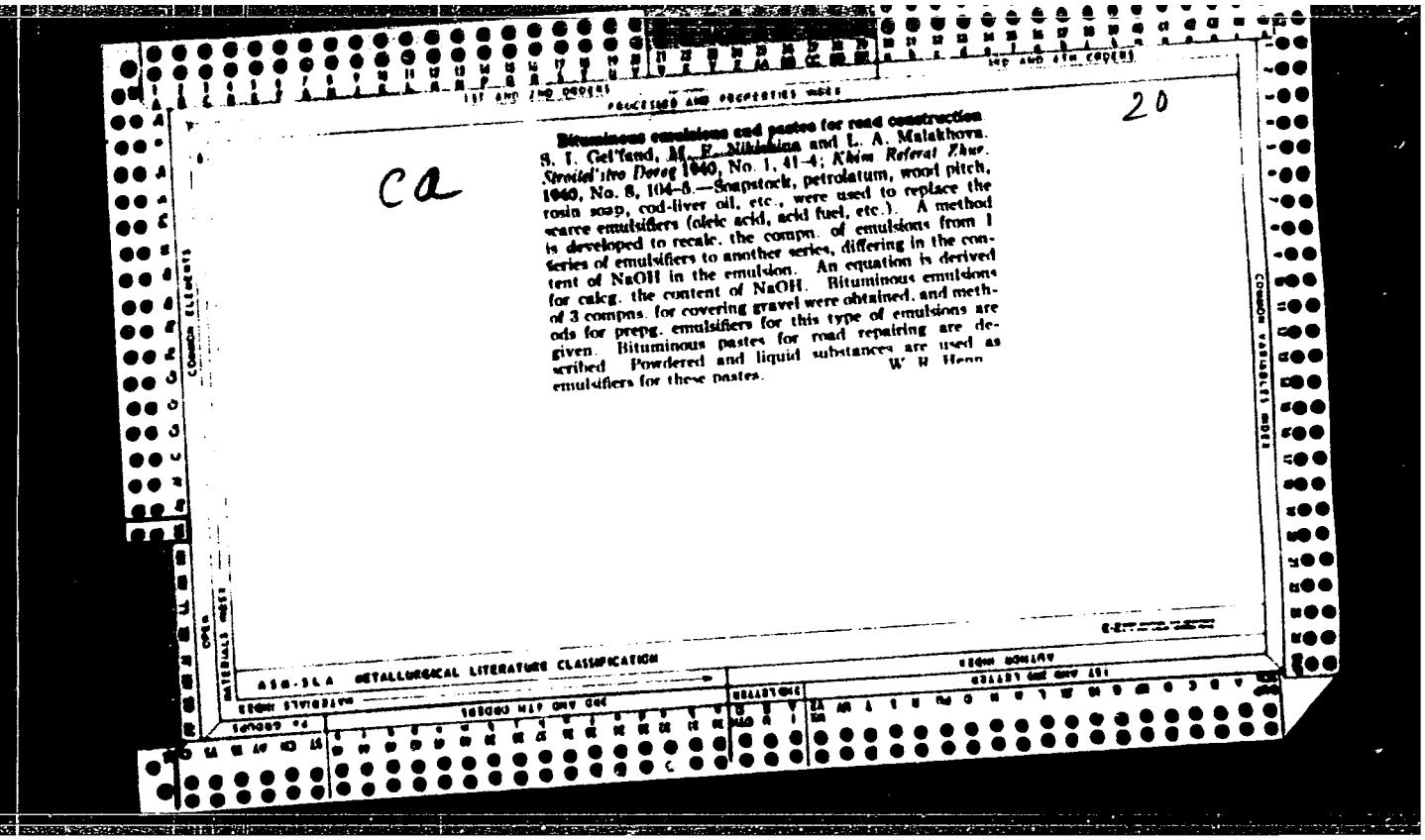
PROCESSES AND PROPERTIES INDEX

Ch

21

Separating paraffin and waxes from tars M. F. Nikishina and K. Kh. Khel. Russ. 46,578, April 30, 1936. Tar is treated with aq. alc., and the residue extd. with C_6H_6 to remove paraffin oil. The product is a solid mixt. of paraffin and wax.

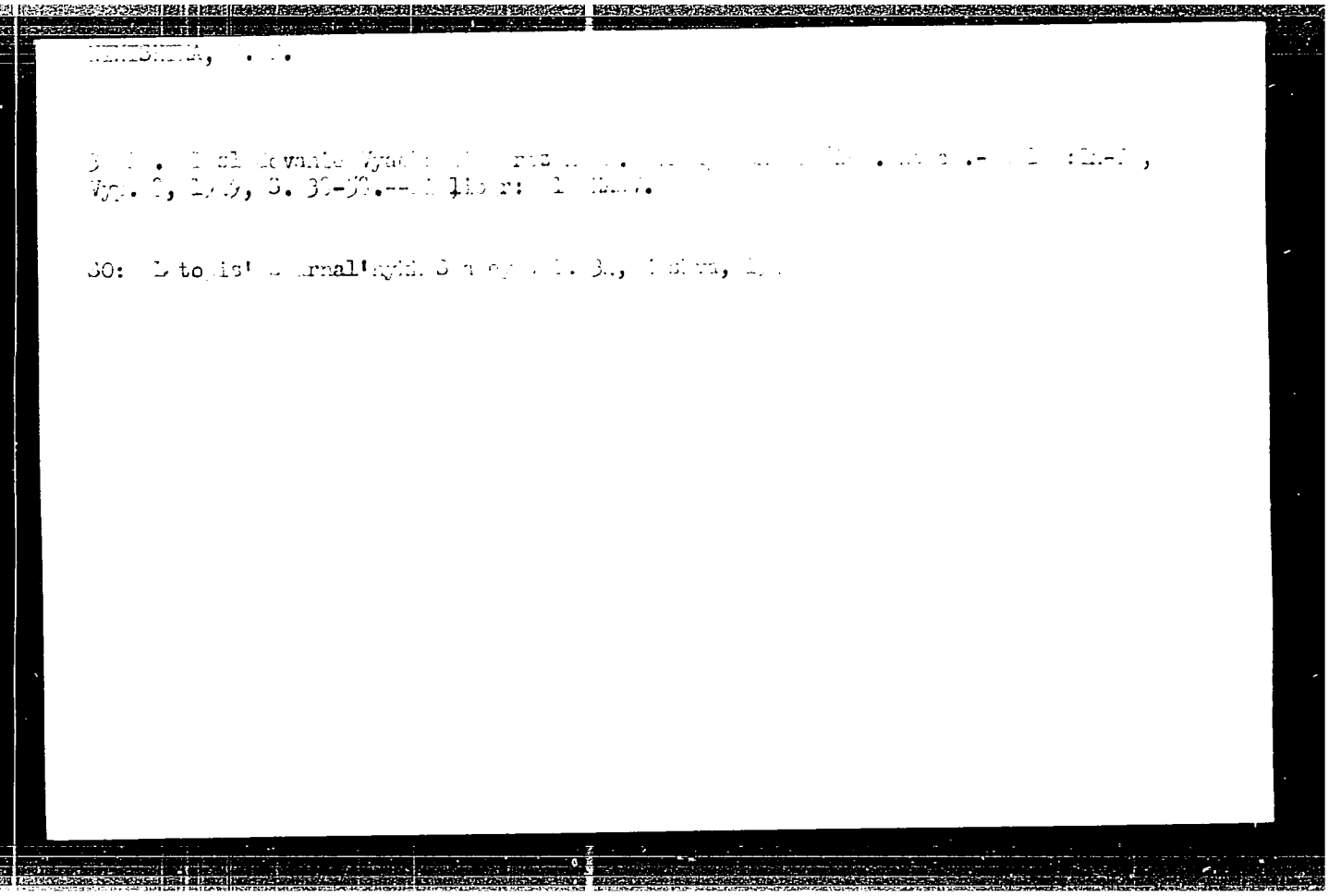
ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

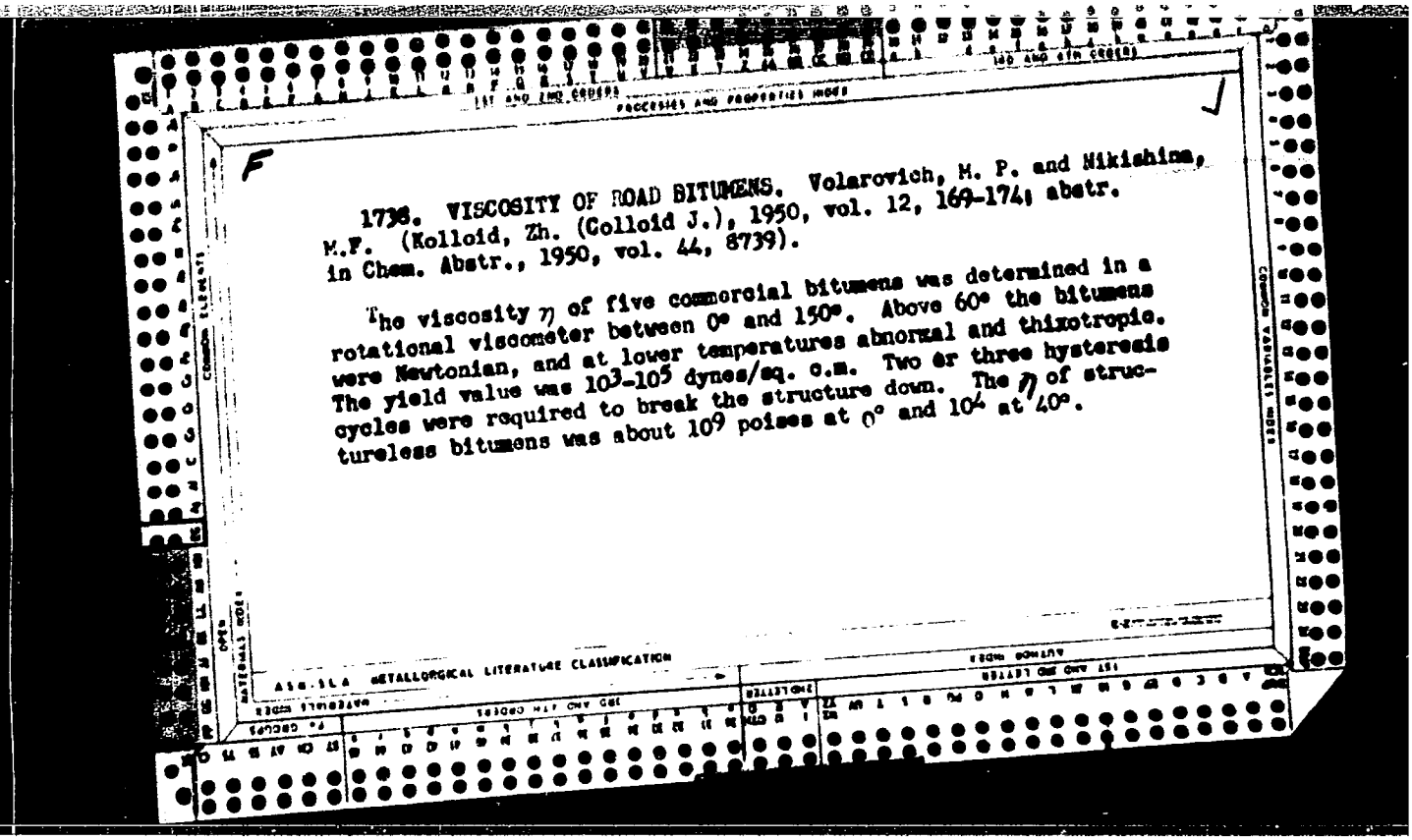


Ca

20

Bituminous emulsions and pastes for road construction S. I. Gel'fand, M. E. Nikolaina and L. A. Malakhova. *Stroitel'stvo Dorog* 1940, No. 1, 41–4; *Khim Referat Zhur.* 1940, No. 8, 104–8.—Soapstock, petrolatum, wool pitch, rosin soap, cod-liver oil, etc., were used to replace the scarce emulsifiers (oleic acid, acid fuel, etc.). A method is developed to recalc. the compn. of emulsions from 1 series of emulsifiers to another series, differing in the content of NaOH in the emulsion. An equation is derived for calcg. the content of NaOH. Bituminous emulsions of 3 compns. for covering gravel were obtained, and methods for prepg. emulsifiers for this type of emulsions are given. Bituminous pastes for road repairing are described. Powdered and liquid substances are used as emulsifiers for these pastes. W. H. Henn





1736. VISCOSITY OF ROAD BITUMENS. Volarovich, M. P. and Nikishina, M.F. (Kolloid, Zh. (Colloid J.), 1950, vol. 12, 169-174; abstr. in Chem. Abstr., 1950, vol. 44, 8739).

The viscosity η of five commercial bitumens was determined in a rotational viscometer between 0° and 150°. Above 60° the bitumens were Newtonian, and at lower temperatures abnormal and thixotropic. The yield value was 10^3-10^5 dynes/sq. c.m. Two or three hysteresis cycles were required to break the structure down. The η of structureless bitumens was about 10^9 poises at 0° and 10^4 at 40°.

NIKISHINA, M.F.; KREMNEV, L.Ya.; BORODINA, L.A.; ARKHIPOVA, A.P.; BEGUNKOVA, N.I.

Bituminous and tar emulsions used in road construction. Avt.dor. 21 no.11:25-27 N '58. (MIRA 11:12)
(Road materials)

NIKISHINA, M.F.; KREMNEV, L.Ya.

Simplifying the technology of making bituminous emulsions in homogenizers. Avt. dor. 23 no.10:14-15 O '60. (MIRA 13:10)
(Bituminous materials)

BUKHAYEV, V.P., inzh.; GEL'FAND, S.I., inzh.; DIDERIKHS, F.F.; KALERT, A.A., doktor tekhn. nauk, prof.; NIKISHINA, M.F., kand. tekhn. nauk; TSENYUGA, N.S., inzh.; KOVRIZHNYKH, L.P., red.; BODANOVA, A.P., tekhn. red.

[Study of lightweight improved road pavements of the northwestern part of the U.S.S.R.]Issledovanie oblegchennykh usovershenstvovannykh pokrytii avtomobil'nykh dorog severo-zapadnoi chasti SSSR. [By]V.P.Bukhaev i dr. Pod red. A.A.Kalerta. Moskva, Avtotransizdat, 1962. 124 p. (MIRA 16:1)
(Russia, Northwestern--Pavements)

NIKITENKO, M.F. [Nikitsenka, M.F.]

Morphological characteristics of the evolution of the vertebrate brain. Vestsi AN BSSR. Ser. biial. nav no.4:108-119 '62.
(MIRA 17:8)

NIKISHINA, M. F.

Road emulsions and factors for their formation. Avt. dor. 25 no.10:13-15 O '62. (MIRA 15:10)

(Road materials) (Emulsions)

NIKISHINA, M.F.; NAZAROV, V.V.; PROKHODA, F.A.

Preparing bituminous emulsions in the Khotuntsev-Pushkin's disperser. Avt. dor. 26 no.6:10-11 Je '63. (MIRA 16:8)

(Bitumen)

NIKLIHINA, M.F.; BEGUNKOVA, N.I.

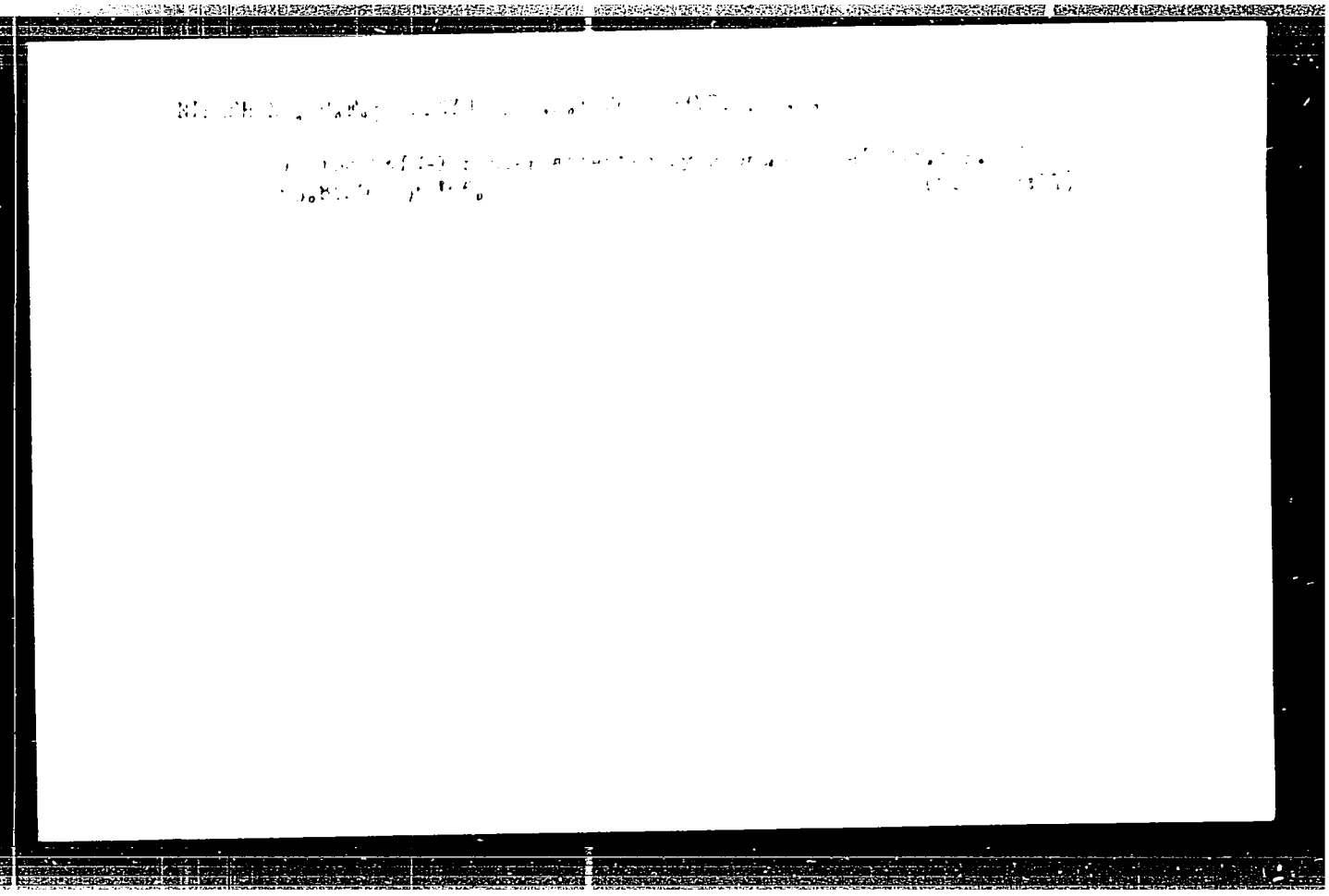
Peculiarities of using bituminous emulsions. Avt.dor. 26 no.10:
21-22 O '63. (MIRA 16:11)

NIKISHINA, Mariya Filippovna; EVENTOV, Iosif Markovich; ARKHIPOVA, Aleksandra Pavlovna; BEGUNKOVA, Ninel' Ivanovna; BORODINA, Lyubov' Alekseyevna; IGON'KINA, Galina Sergeyevna; NAZAROV, Vladimir Vladimirovich; ALEKSEYEV, A.P., red.

[Emulsions used in road construction] Dorozhnye emul'sii. [By] M.F.Nikishina i dr. Moskva, Transport, 1964. 171 p. (MIRA 17:12)

NIKISHINA, M.F.; TSENYUGA, N.[illegible], [illegible]V[illegible], [illegible].M.

How SKTN-1 operates. Avt. dor. [illegible] no.4:15 Ap '[illegible]. (MIR [illegible])



ANDREYEV, I.S.; KASHIRSKAYA, I.V.; NIKISHINA, N.G.

Concentration changes in the luminescence spectra of various types of ZnS - Cu phosphors. Nauch. trudy TashGu no.221. Fiz. nauki no.21:21-30 '63. (MIRA 17:4)

NIKISHINA, T. M.; SHILYAGINA, N. V.; VOLOKHOV, A. A.; KRYLOVA, O. A. (Moskva)

K voprosu o stanovlenii i razvitii retikulyarnoy formatsii stvola golovnogo mozga v ontogene e.

report submitted for the First Moscow Conference on Reticular formation, Moscow, 22-26 March 1960.

NIKISHINA, Ye.F.

Results of conducting an early spring excursion in zoology.
Est.v shkole no.2:65-69 Mr-Ap '54. (MLRA 7:3)

1. Orekhovo-Zuyevskiy pedagogicheskiy institut.
(School excursions) (Zoology--Study and teaching)

USSR/Biology - Adaptation

Card 1/1 Pub. 86 - 24/37

Authors : Nikishina, Ye. F.

Title : Adaptability of animal life to the conditions of periodically drying reservoirs

Periodical : Priroda 44/4, 111 - 113, Apr 1955

Abstract : A study is made of the adaptability of forms of animal life to the situation where reservoirs dry up periodically. It was noted that some forms develop the ability to survive through the dry periods; others adapt themselves to living under the dry conditions if the durations of the puddles is short. Five Soviet references (1910 - 1950). Drawing.

Institution : .....

Submitted : .....

USSR / General Biology. General Hydrobiology. B-4

Abs Jour : Ref Zhur - Biol., No 14, 1958, No 61973

Author : Nikishina, Ye. F.
Inst : Smolensk State Institute of Pedagogics.
Title : Some Data on Hydrobiology of Small Moscow Oblast' Rivers.

Orig Pub : Uch. zap. Smolenskogo gos. ped. in-ta, 1956, vyp. 2, 264-273

Abstract : None given

Card 1/1

NIKISHINA, Ye.F.

Adaptation of the mollusk Limnaea stagnalis to the drying up of the body of water [with summary in English]. Zool.zhur. 36 no.12:1896-1897 D '57. (MIRA 11:1)

1.Smolenskiy pedagogicheskiy institut.
(Molluska)

NIKISHINA, Ye.F., kand.biologicheskikh nauk

Zoology lesson at the museum of local geography. Biol. v shkole no. 1:84-85 Ja-F '61. (MIRA 14:4)

1. Smolenskiy pedagogicheskiy institut.
(Zoology--Audio-visual aids)

NIKISHINA, Ye.F., kand.biologicheskikh nauk; KLUGLOV, N.

Atheistic education in zoology lessons in the sixth grade. Biol. v shkole no.1:22-23 Ja-F '62. (MIRA 15:1)

1. Smolenskiy pedagogicheskiy institut.
(ATHEISM—STUDY AND TEACHING)

KURYSHEV, V.I.; NIKISHKIN, A.I. (Ryazan')

Observations of the Geminid meteoric shower in 1957 in Ryazan.
Astron. tsir. no.192:31-32 My '58. (MIRA 11:10)
(Meteors--December)

SOV/35-59-9-7260

Translation from: Referativnyy zhurnal, Astronomiya i Geodeziya, 1959, Nr 9, p 62 (USSR)

AUTHORS: Kuryshev, V.I., Nikishkin, A.I.

TITLE: The Observation of the Orionids in 1957 in Ryazan'

PERIODICAL: Astron. tsirkulyar, 1958, July 3, Nr 193, pp 29 - 31

ABSTRACT: The authors give information about observations carried out of a stream of Orionids by a group of members of the Ryazan' section of the VAGO and by the astronomic circle of the Pedagogical Institute from October 21 - 24. The observations were carried out with the naked eye and with the AT-1 astronomic tubes. The maximum number of meteors per night was from 23-24 (hourly number 6.0).

G.A.M.

Card 1/1

SOV/35-59-8-6484

Translation from: Referativnyy zhurnal, Astronomiya i Geodeziya, 1959, Nr 8, p 55

AUTHORS: Kuryshev, V.I., Nikishkin, A.I.

TITLE: Observations of the Meteoric Stream of Geminids at Ryazan' in 1957

PERIODICAL: Astron. tsirkulyar, 1958, May 26, Nr 192, pp 31 - 32

ABSTRACT: Observations of the meteoric stream of Geminids were performed with AT-1 astronomical tubes on December 12 - 13. Thirteen meteors were recorded during two hours of observations. Their color and brightness distribution is presented.

N.P.K.

Card 1/1

SOV/35-59-9-7260

Translation from: Referativnyy zhurnal, Astronomiya i Geodeziya, 1959, Nr 9, p 62 (USSR)

AUTHORS: Kuryshev, V.I., Nikishkin, A.I.

TITLE: The Observation of the Orionids in 1957 in Ryazan'

PERIODICAL: Astron. tsirkulyar, 1958, July 3, Nr 193, pp 29 - 31

ABSTRACT: The authors give information about observations carried out of a stream of Orionids by a group of members of the Ryazan' section of the VAGO and by the astronomic circle of the Pedagogical Institute from October 21 - 24. The observations were carried out with the naked eye and with the AT-1 astronomic tubes. The maximum number of meteors per night was from 23-24 (hourly number 6.0).

G.A.M.

Card 1/1

NIKISHKIN, A.I.

Observations of meteor showers in 1957. Biul.VAGO no.27:37-39 '60. (MIRA 13:6)

1. Ryazanskoye otdeleniye Vsesoyuznogo astronomo-geodezicheskogo obshchestva.
(Meteors)

S/035/62/000/010/062/128
A001/A101

AUTHORS: Getmanenko, T. V., Nikishkin, A. I.

TITLE: Results of visual observations of meteors in the Crimea

PERIODICAL: Referativnyy zhurnal, Astronomiya i Geodeziya, no. 10, 1962, 66, abstract 10A466 (In collection: "Ionosfern. issled. (meteory), no. 8", M., AN SSSR, 1962, 102 - 109, English summary)

TEXT: Observations were carried out during 18 nights in August 1958 at the Crimean meteor station of VAGO. During the indicated period of time, a group of 5 - 9 observers recorded 4,200 meteors. The coefficient of attention and its variations were studied. The authors present the diagram of the number of Perseids and luminosity function for Perseids and background meteors, as well as the azimuth distribution of directions of sporadic meteors. There are 6 references.

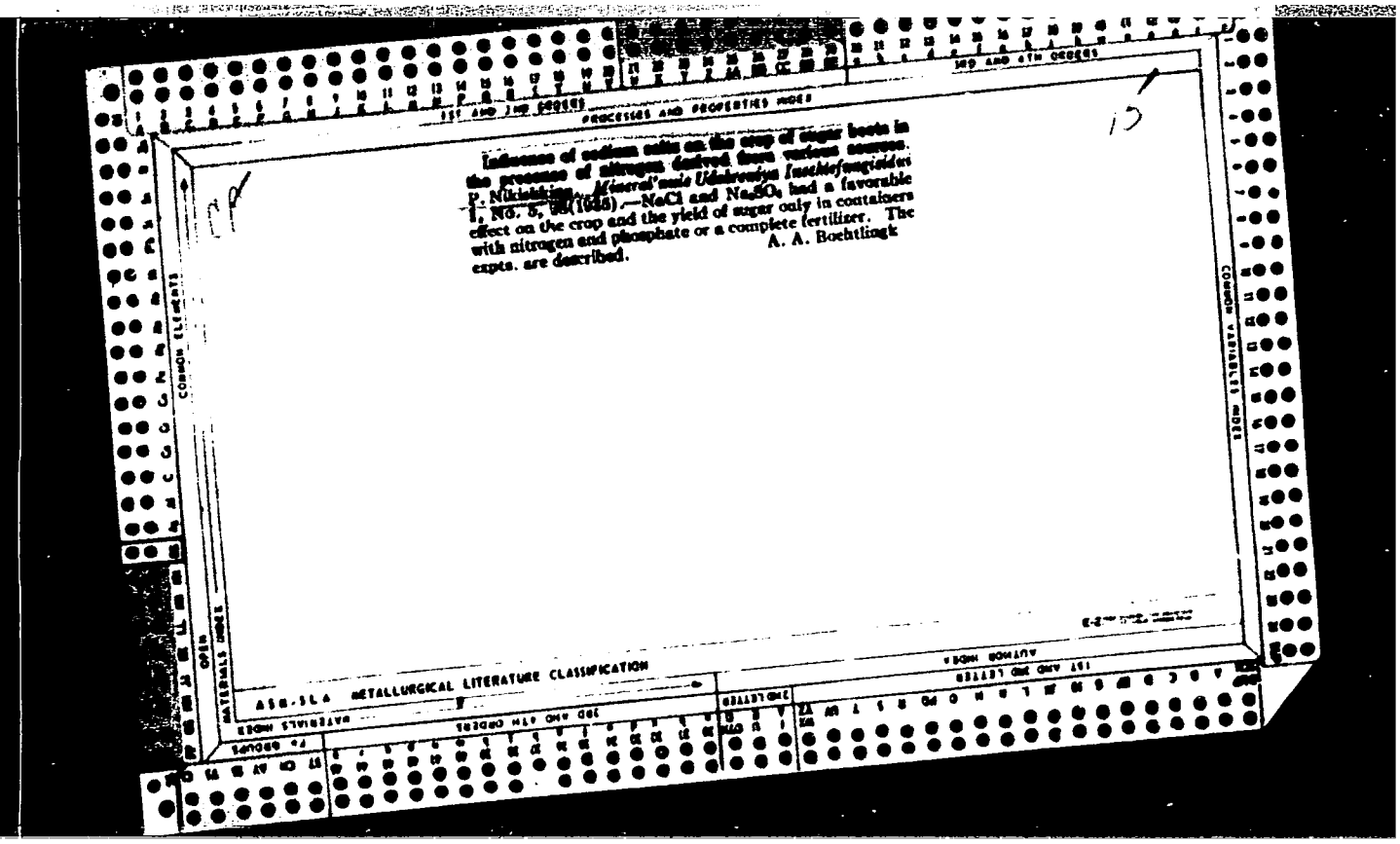
Authors' summary

[Abstracter's note: Complete translation]

Card 1/1

DYNIN, I., inzh.; NIKISHKIN, L., inzh.

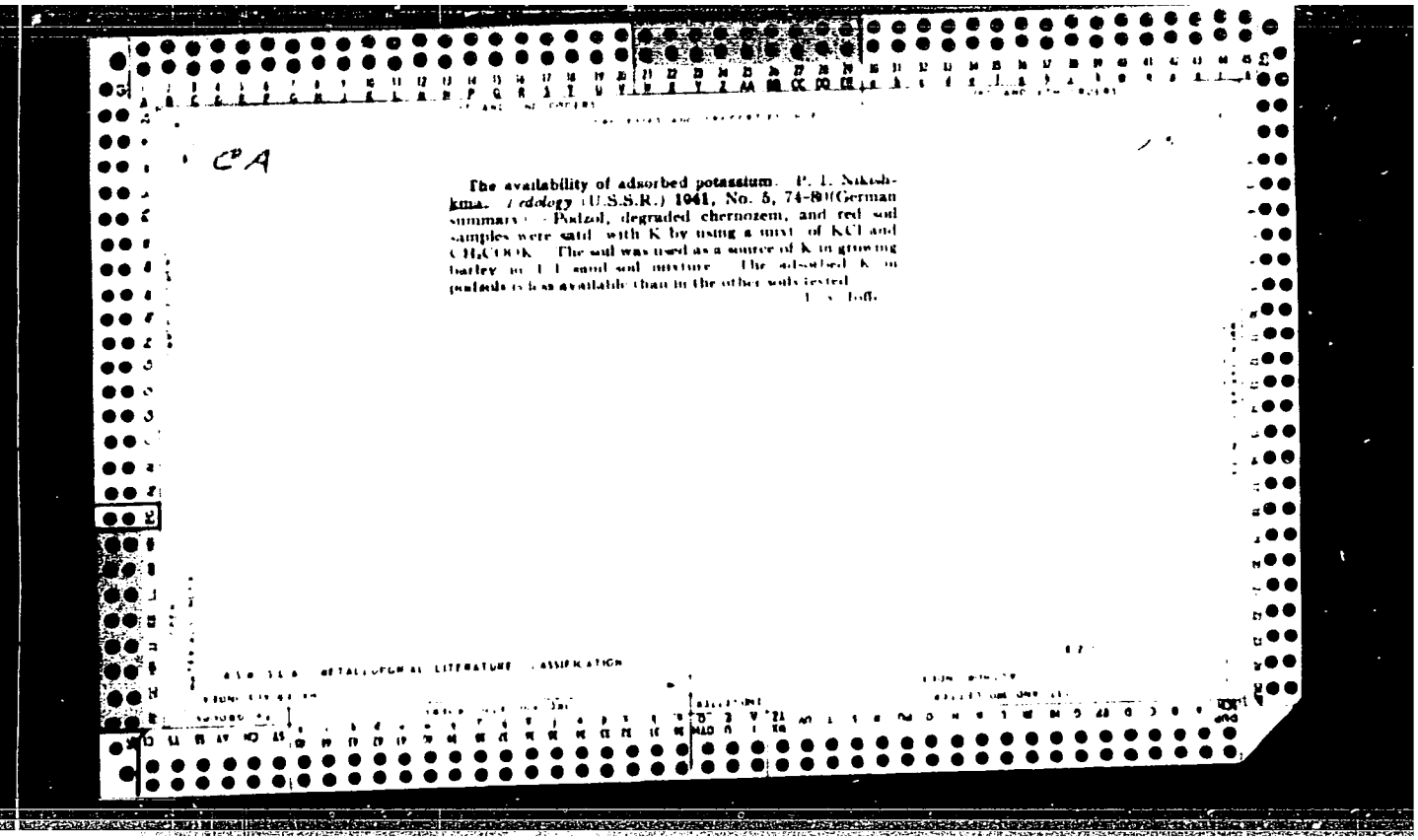
By the call of the heart. NTO 4 no.12:29 D '62. (MIRA 16:1)
(Astrakhan--Ships--Maintenance and repair)



Influence of sodium salts on the crop of sugar beets in the presence of nitrogen derived from various sources. P. Nikitinskii. *Mineral'nye Udobreniya Insektofungitsidy* 1, No. 5, 88(1958).—NaCl and Na_2SO_4 had a favorable effect on the crop and the yield of sugar only in containers with nitrogen and phosphate or a complete fertilizer. The expts. are described.

A. A. Boehtlingk

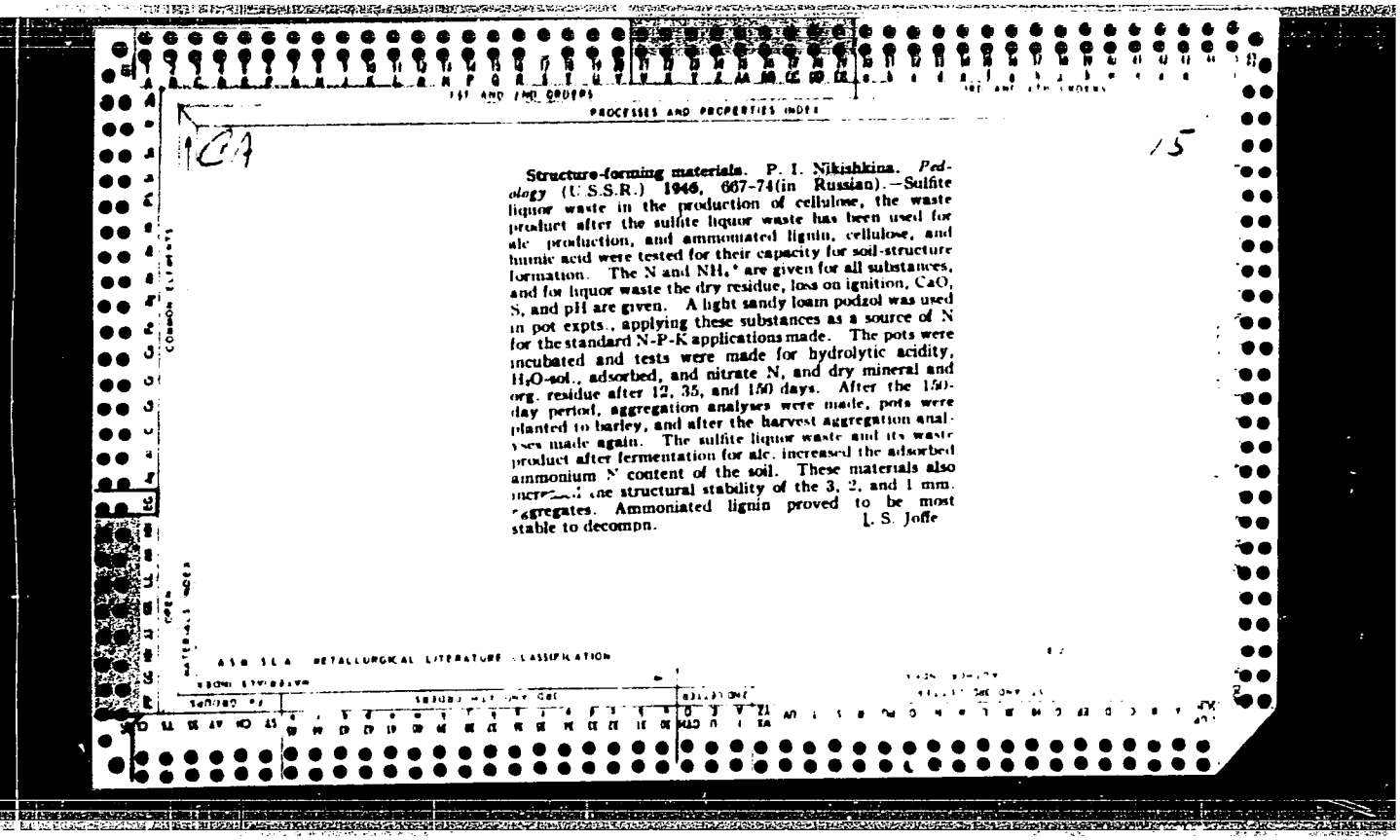
A58-5L4 METALLURGICAL LITERATURE CLASSIFICATION



C^A

The availability of adsorbed potassium. P. I. Nikishkina. *Pedology* (U.S.S.R.) **1941**, No. 5, 74–80 (German summary). Podzol, degraded chernozem, and red soil samples were satd. with K by using a mixt. of KCl and CH_3COOK. The soil was used as a source of K in growing barley in 1:1 sand-soil mixture. The adsorbed K in podzols is less available than in the other soils tested.

I. S. Joffe.



PROCESSES AND PROPERTIES INDEX

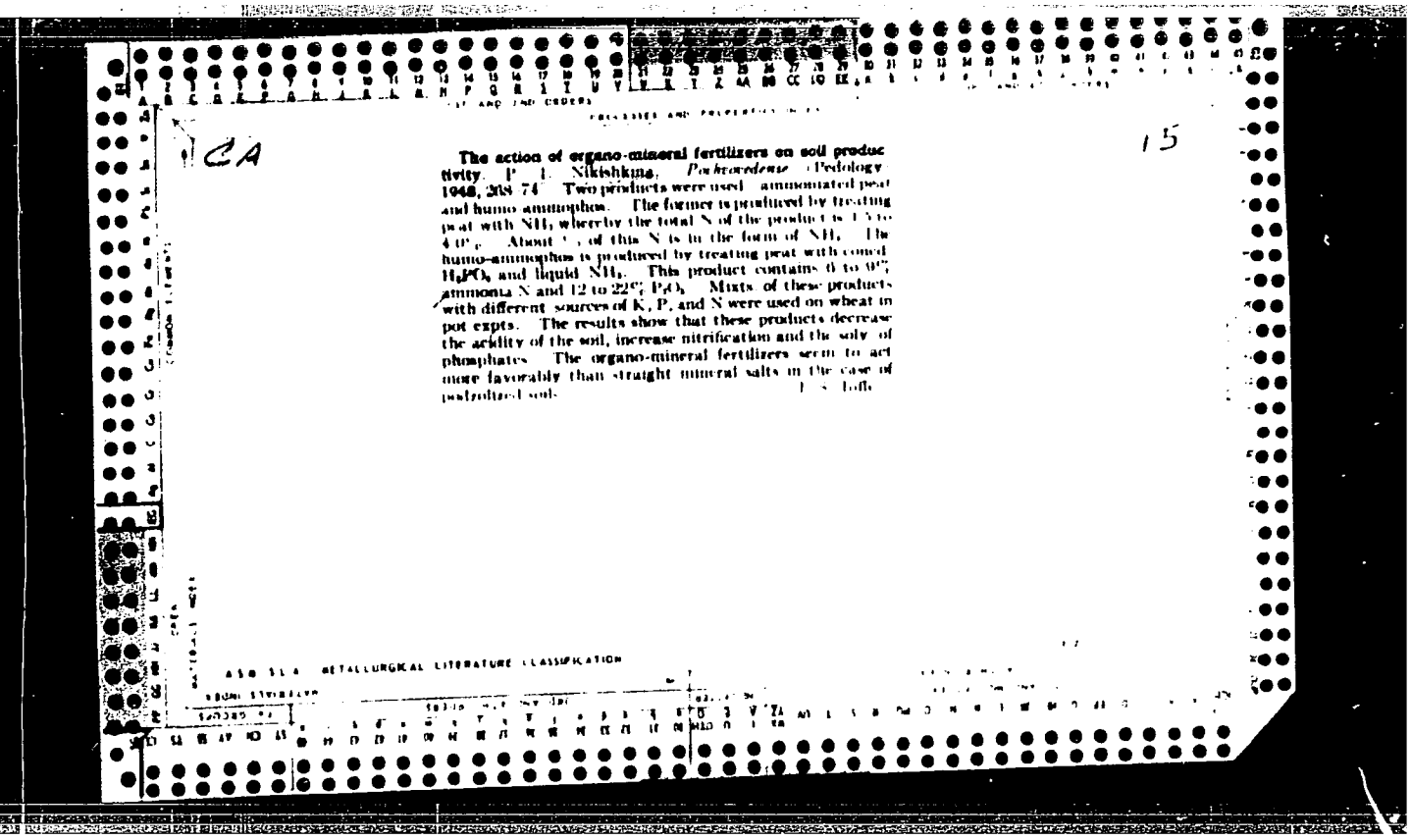
C14

15

Structure-forming materials. P. I. Nikishkina. *Pedology* (U.S.S.R.) **1946**, 667-74(in Russian).—Sulfite liquor waste in the production of cellulose, the waste product after the sulfite liquor waste has been used for alc. production, and ammoniated lignin, cellulose, and humic acid were tested for their capacity for soil-structure formation. The N and NH_4^+ are given for all substances, and for liquor waste the dry residue, loss on ignition, CaO, S, and pH are given. A light sandy loam podzol was used in pot expts., applying these substances as a source of N for the standard N-P-K applications made. The pots were incubated and tests were made for hydrolytic acidity, H_2O-sol., adsorbed, and nitrate N, and dry mineral and org. residue after 12, 35, and 150 days. After the 150-day period, aggregation analyses were made, pots were planted to barley, and after the harvest aggregation analyses made again. The sulfite liquor waste and its waste product after fermentation for alc. increased the adsorbed ammonium N content of the soil. These materials also increased the structural stability of the 3, 2, and 1 mm. aggregates. Ammoniated lignin proved to be most stable to decompn.

L. S. Joffe

ASM SLA METALLURGICAL LITERATURE CLASSIFICATION

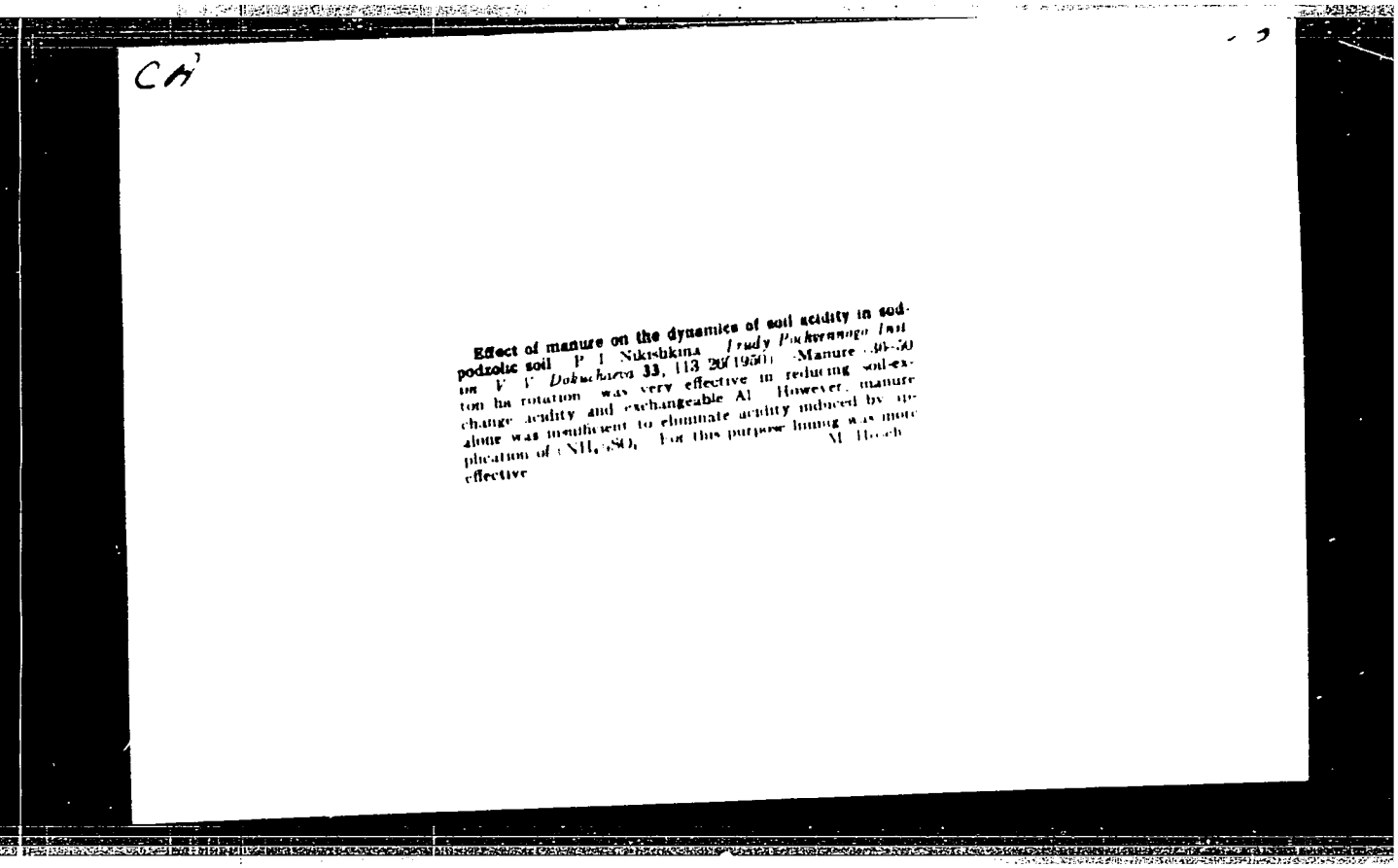


CA

15

The action of organo-mineral fertilizers on soil productivity. P. I. Nikishkina. *Pochvovedenie* (Pedology) 1948, 268-74. Two products were used: ammoniated peat and humo-ammophos. The former is produced by treating peat with NH_3, whereby the total N of the product is 1.5 to 4.0%. About ½ of this N is in the form of NH_3. The humo-ammophos is produced by treating peat with concd. H_3PO_4 and liquid NH_3. This product contains 6 to 9% ammonia N and 12 to 22% P_2O_5. Mixts. of these products with different sources of K, P, and N were used on wheat in pot expts. The results show that these products decrease the acidity of the soil, increase nitrification and the solv. of phosphates. The organo-mineral fertilizers seem to act more favorably than straight mineral salts in the case of podzolized soil.

A50 S1A METALLURGICAL LITERATURE CLASSIFICATION

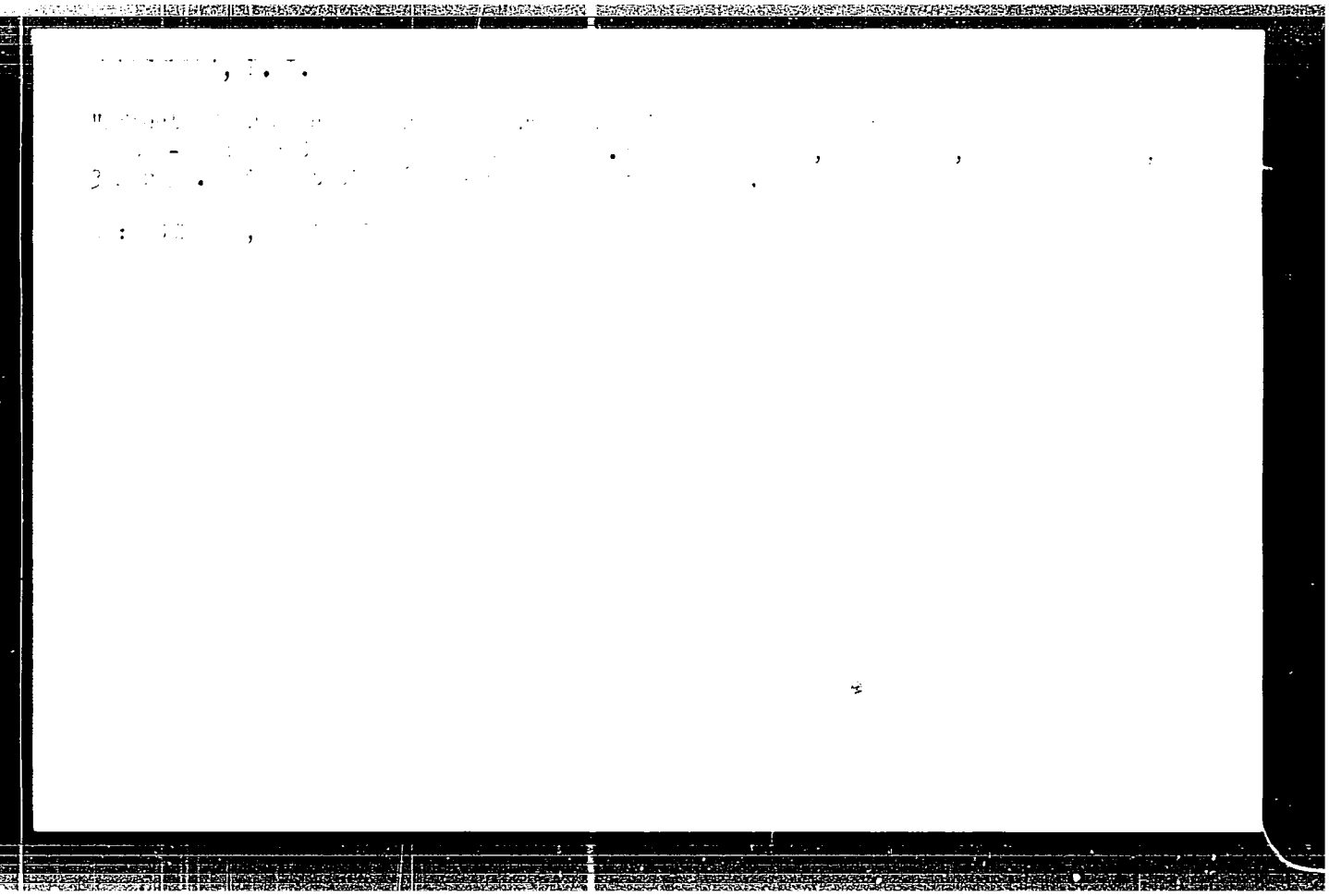


CH

Effect of manure on the dynamics of soil acidity in sod-podzolic soil. P. I. Nikishkina. *Trudy Pochvennogo Inst. im. V. V. Dokuchaeva* 33, 113-20 (1950). Manure (40-50 tons ha rotation) was very effective in reducing soil-exchange acidity and exchangeable Al. However, manure alone was insufficient to eliminate acidity induced by application of $(NH_4)_2SO_4$. For this purpose liming was more effective. M. Hoch

NIKISHKINA, P.I.

The influence of manure on the change in agrochemical properties of sod-podzolized soils. Pochvovedenie '52, 829-39. (MLRA 5:9)
(CA 47 no.13:6590 '53)



NIKISHKINA, P. I.

USSR/Soil Cultivation. Organic Fertilizers. J-4

Abs Jour: Ref Zhur-Biologiya, No 1, 1958, 1271.

Author : Nikishkina, P.I.
Inst : Soil Science Institute of the Academy of Sciences USSR
Title : The Influence of Organo-Mineral Mixtures and Granules on the Dynamics of Soil Processes and Plant Harvests.

Orig Pub: Tr. Pochv. in-ta, Akad Nauk SSSR, 1957, 50, 55-78.

Abstract: The results of vegetation and field experiments have confirmed the higher effectiveness of granular superphosphate as compared with the powdered variety; this is because of the lessened retrogradation of the phosphorus. Various organic admixtures (among them an 0.05 n HCl solution cleansed of nutritive elements) to the powdered or granulated superphosphate increased the yield and facilitated the entry of phosphorus into the plant.

Card : 1/2

NIKISHKINA, P.I.

Applying the carmine method in the photometric analysis of boron.
Pochvovedanie no.9:107-109 S '59. (MIRA 13:1)

1.Pochvennyy institut im. V.V. Dokuchayeva Akademii nauk SSSR.
(Soils--Analysis) (Boron) (Photometry)

NIKISHKINA, P.I.

Effect of boron on plant development under different conditions of nutrition. Trudy Pochv. inst. 55:222-238 '60. (MIRA 13:11)
(Plants, Effect of boron on)
(Field crops--Fertilizers and manures)

NIKISHKINA, P.I.

Effect of molybdenum on the development of plants in turf-Podzolic and red soils. Pochvovedenie no. 5:76-87 My '61. (MIRA 14:5)

1. Pochvennyy institut imeni V.V. Dokuchayeva AN SSSR.
(Plants, Effect of molybdenum on)

NIKISHKINA, P.I.

Effect of prolonged application of organic and mineral fertilizers on the availability of trace elements in the soil. Pochvovedenie no.9:13-20 Ag [i.e. S] '63. (MIRA 16:10)

1. Pochvennyy institut imeni V.V. Dokuchayeva.
(Trace elements) (Fertilizers and manures)

NIKISHKINA, P.I.; DOLGOPOLOVA, R.V.

Soil conditions for the effectiveness of boron fertilizers. Pochvovedenie no.11:70-78 N '64 (MIRA 18:1)

1. Pochvennyy institut imeni V.V. Dokuchayeva AN SSSR, Moskva.

1. Nikishkina, V.M.

2. USSR (600)

4. Hosiery

7. For monthl improvement of work indexes. Leg. prom. no. 12, 1952.

9. Monthly list of Russian Accessions. Library of Congress, March 1953, Unclassified.

NIKISHIU, K.., ARTSUS, L., NEVOLIN, F., and PETROV, A.

"Influence de la ramification du radical hydrocarbone dans les dodecylbenzene-sulfonates, sur leurs propriétés tensio-actives et leur pouvoir détergent," a paper presented at the Thirtieth International Congress of Chemical Industry, Athens, 17-24 Sep 1957.

NIKISHORA, G. D.

2799. INTERFERENNIONNAYA SPEKTROSKOPIYA S POMOSH'YU POLOS FIZO. KHAR'KOV 1954. 11C. 22CM. (M-VO VYSSH. OBRAZOVANIYA SSSR. KHAP'K. GOS. UN-T IM. A.M. GOR'KOGO). 100 EKZ. BESPL. - (54-56144)

SO: KNIZHANAYA LETOPIS, VOL. 2, 1955

NIKISHOV, A.I., uchitel'

Lessons on the study of fishes. Biol. v shkole no.4:19-26 Jl-Ag '61. (MIRA 14:7)

1. Zagoryanskaya srednyaya shkola Shchelkovskogo rayona Moskovskoy oblasti.
(Fishes)

NIKISHOV, A.I., uchitel'

Keeping coypu in schools. Biol. v shkole no.5:59-61 S-O '61.
(MIRA 14:9)

1. Zagoryanskaya srednyaya shkola Shchelkovskogo rayona Moskovskoy oblasti.
(Coypu)

NIKISHOV, A.I.

Club of young zoologists in a Pioneer camp. Biol. v shkole no.3: 59-63 My-Je '63. (MIRA 16:10)

1. Zagoryanskaya srednyaya shkola, Shchelkovskiy rayon Moskovskoy oblasti.

FD-2356

Nikishov, A. I.

USSR/Nuclear Physics - Meson production

Card 1/2 Pub. 146 - 21/34

Author : Belen'kiy, S. Z., and Nikishov, A. I.

Title : Plural production of mesons at energies of 1 to 2.2 Bev

Periodical : Zhur. eksp. i teor. fiz. 28, 744-746, Jun 1955

Abstract : The authors discuss the work of W. Fowler et alii (Phys. Rev. 95, 1026, 1954) on the interaction with protons of high-energy neutrons obtained from the cosmotron. In the present article they attempt to include isobaric states into the statistical (Fermi) theory of the plural production of particles, under the assumption that in the collision of nucleons particles can be formed with mass equal to $1.32M_0$ (M_0: nucleon mass), in agreement with experiments on meson-nucleon scattering (I. Ye. Tamm, Yu. A. Gel'fand, and V. Ya. Faynberg, ibid. 26, 1954; V. I. Ritus, ibid. 27, 1954). They give data on the ratio of number of cases of formation of one negative pi-meson to number of cases of formation of two pi-mesons etc. They conclude that the calculation of the plural production of mesons at energies of the order of 2 Bev according to statistical theory, but taking account of isobaric states, leads to completely satisfactory agreement with experience;

the angular and energy distribution will be duscussed in the next communication. Six references: e. g. M. I. Podgoretskiy and I. I. Rozental', ibid. 27, 1954.

Institution : Physical Institute im. Lebedev, Acad. Sci. USSR

Submitted : March 27, 1955

FD-2800

NIKISHOV, A.I.

USSR/Nuclear Physics - Meson production

Card 1/2 Pub. 146 - 17/26

Author : Nikishov, A. I.

Title : Role of isobaric states of nucleons in the production of mesons

Periodical : Zhur. eksp. i teor. fiz., 29, August 1955, 246

Abstract : According to experimental indications (W. Fowler et al., Phys. Rev., 95, 1954), in the process of pion production in nucleon-nucleon collisions an essential role is played by the isobaric states of the nucleons, with a number of authors holding to the viewpoint that the formation of pions proceeds only through isobaric states (D. Peaslee, Phys. Rev., 94, 1954; F. Belinfante, Phys. Rev., 92, 1953); however, it has not been excluded that the role of direction generation is nevertheless significant. In the present note the writer analyzes experiments on the formation of charged pions in the reaction Be^9+p, in which the ratio rho = π^+/π^- (ratio of the numbers of pions formed) turns out to equal 6 for energies of the incident proton of 1 Bev and equal 1.8 for energies of 2.3 Bev. The author discusses his investigation of the ratio rho according to statistical theory of F. Belinfante (cit.), and obtains corresponding values for intermediate energies: E=1, 1.46, 1.75, 2.3 resp. rho=5, 2.7, 2, 1.8. The author concludes that both the ratio and also its dependence upon energy agree well with

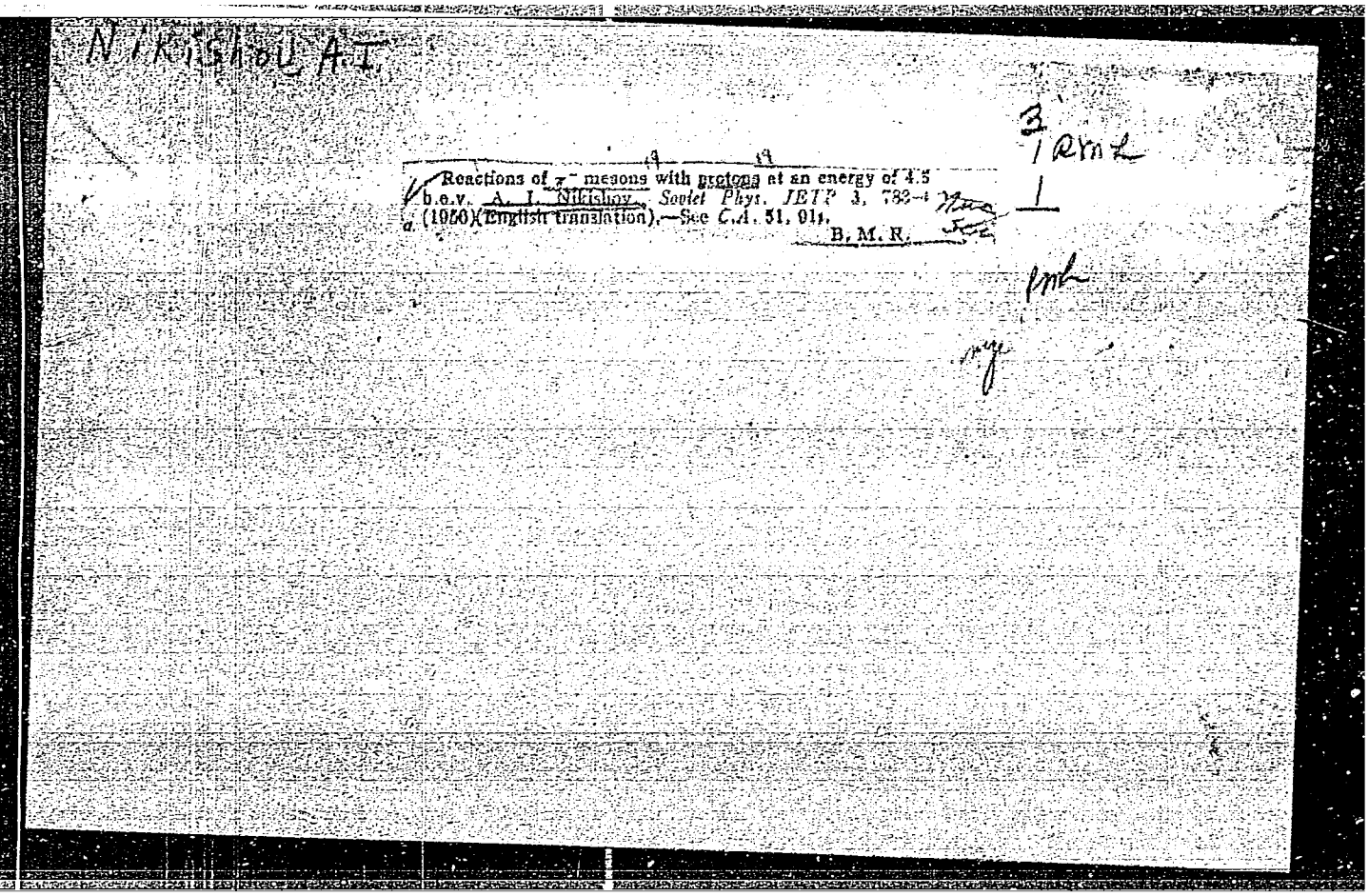
Card 2/2

FD-2880

computations according to the statistical theory, in which one takes into account the contribution direct pi-meson production and their formation through isobaric states. Thanks Prof. S. Z. Belen'kiy. Five references: e.g. S. Z. Belen'kiy, author. Ibid., 28, 1955.

Institution :

Submitted : April 18, 1955



N. Nikishov, A. I.

Reactions of π^- mesons with protons at an energy of 4.5 b.e.v. A. I. Nikishov. *Soviet Phys. JETP* 3, 732–4 (1956)(English translation).—See *C.A.* 51, 914.

B, M. R.

Category : USSR/Nuclear Physics - Elementary Particles C-3

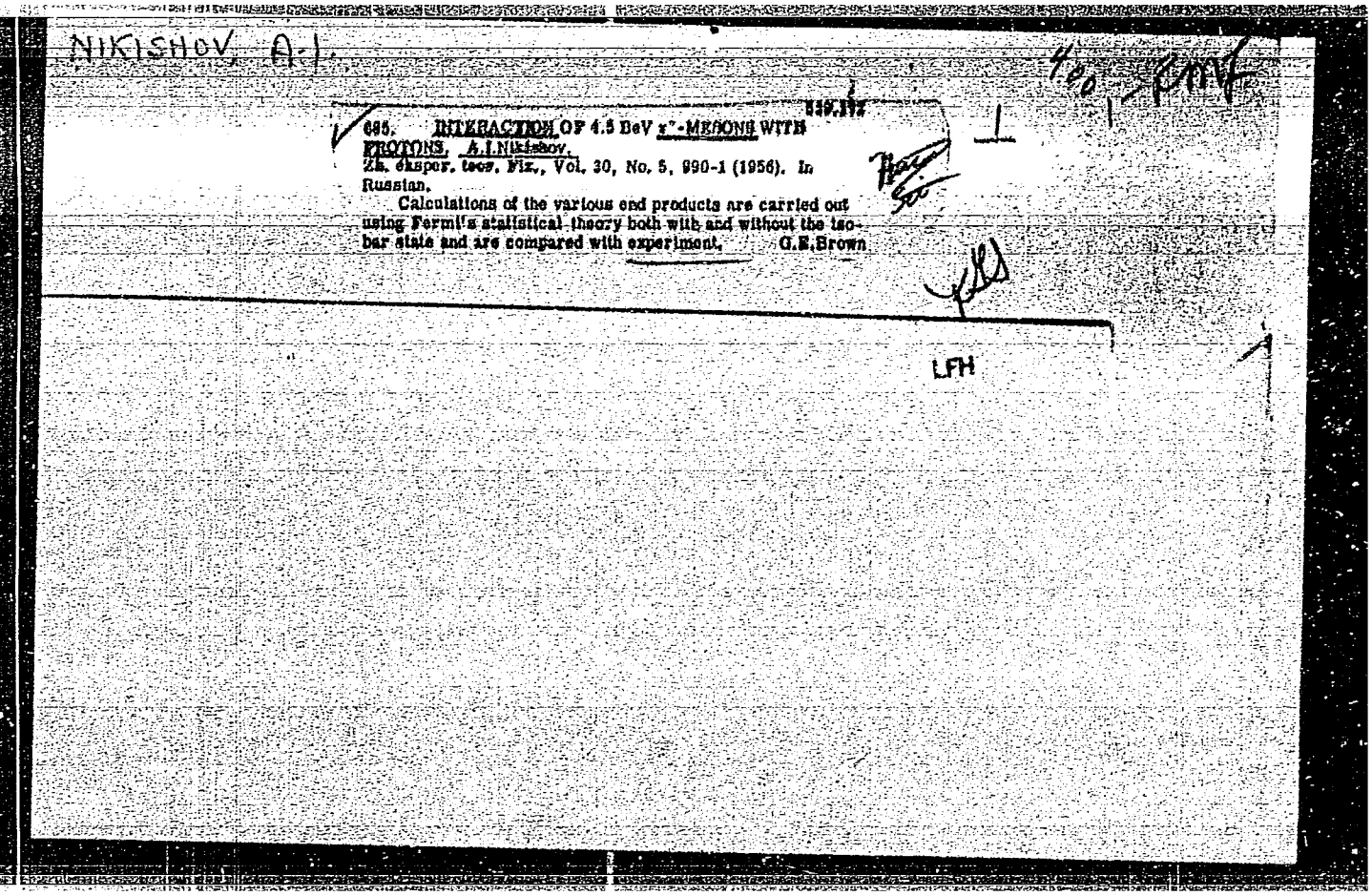
Abs Jour : Ref Zhur - Fizika, No 1, 1957, No 381

Author : Nikishov, A.I.
Title : On the Interaction Between π-mesons and Protrons at 1.4 Bev.

Orig Pub : Zh. eksperim. i teor. fiziki, 1956, 30, No 3, 601-603

Abstract : Analysis of the experimental results on the interaction between negative π-mesons and nucleons from the point of view of the statistical theory, taking into account the isobar states. The number of cases with different numbers of secondary π-mesons are calculated, as is the momentum distribution for the secondary ions and nucleons in the center of mass system for the case of primary π-mesons with an energy of 1.37 Bev. The experimental data are in good agreement with the results of the calculations. The momentum distribution of the π-mesons contradicts the premise that the creation occurs only through the isobar state. However, the considerable blurring of the value of the isobar decay energy can be interpreted as evidence that a considerable role is also played by the creation of secondary mesons without the formation of an intermediate isobar state.

Card : 1/1



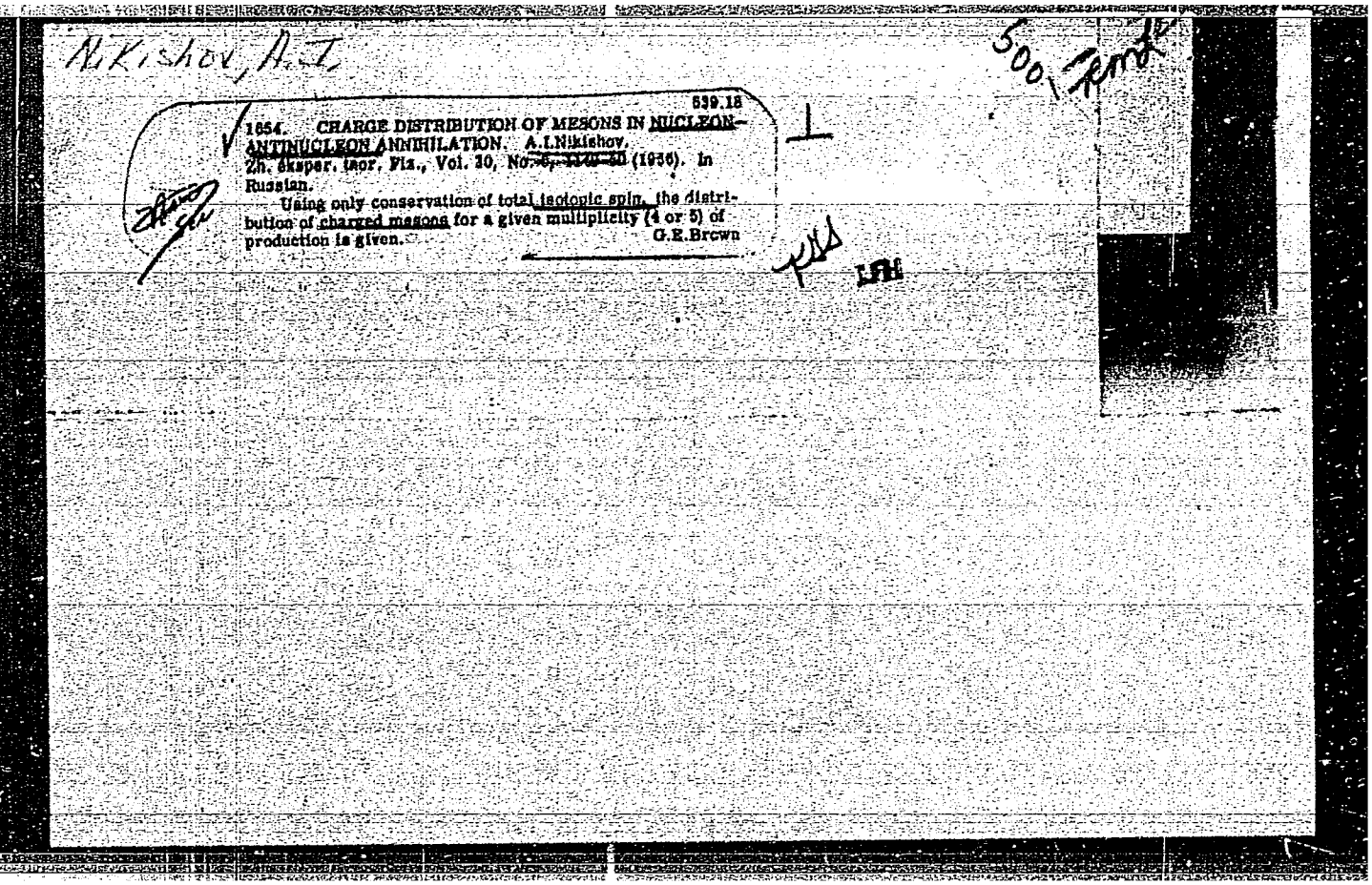
NIKISHOV, A.I.

539.172

695. INTERACTION OF 4.5 BeV π^--MESONS WITH PROTONS. A.I.Nikishov. Zh. eksper. teor. Fiz., Vol. 30, No. 5, 990-1 (1956). In Russian.

Calculations of the various end products are carried out using Fermi's statistical theory both with and without the isobar state and are compared with experiment. G.E.Brown

LFH



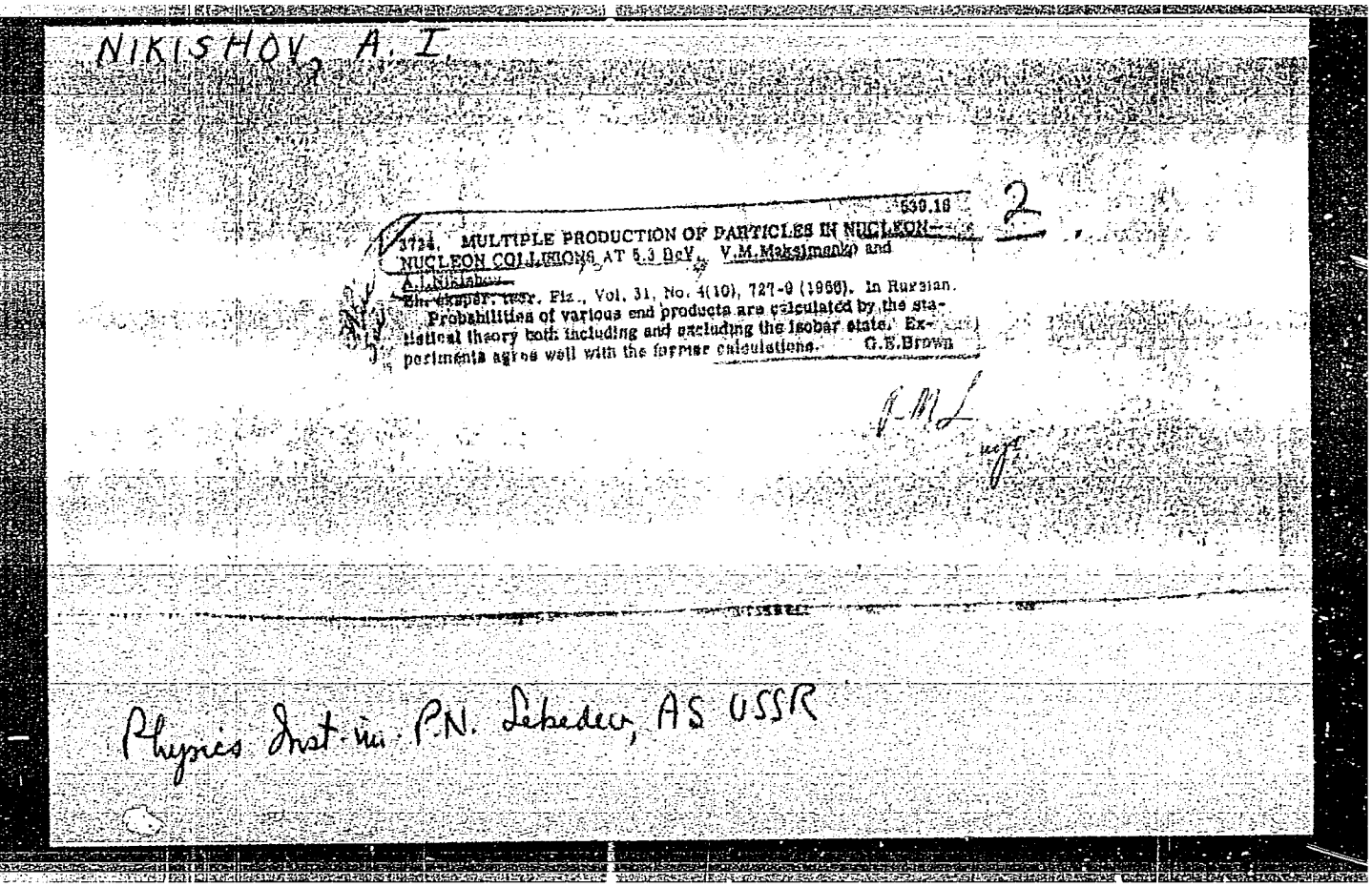
Nikishov, A.I.

539.18

1654. CHARGE DISTRIBUTION OF MESONS IN NUCLEON-ANTINUCLEON ANNIHILATION. A.I.Nikishov. Zh. eksper. teor. fiz., Vol. 30, No. 6, 1170-80 (1956). In Russian.

Using only conservation of total isotopic spin, the distribution of charged mesons for a given multiplicity (4 or 5) of production is given.

G.E.Brown



NIKISHOV, A. I.

539.18

3724. MULTIPLE PRODUCTION OF PARTICLES IN NUCLEON-NUCLEON COLLISIONS AT 5.3 BeV. V.M.Maksimenko and A.I.Nikishov. Zh. eksper. teor. Fiz., Vol. 31, No. 4(10), 727-9 (1956). In Russian. Probabilities of various end products are calculated by the statistical theory both including and excluding the isobar state. Experiments agree well with the former calculations. G.E.Brown

2

Physics Inst. im. P.N. Lebedev, AS USSR

NIKISHOV, A. I. Cand Phys-Math Sci -- (diss) "Statistical theory of the development of particles ~~with~~ at higher energies". Mos, 1957. 7 pp. 20 cm. (Acad Sci USSR. Phys Inst im, P.N. Lebedev). 125 copies. Bibliography at the end of the dissertation (16 names). (KL, 9-57,99).

Nikishov, A.I.

4031

CHARGE DISTRIBUTION OF MESONS IN NUCLEON-ANTINUCLEON ANNIHILATION. A. I. Nikishov. Soviet Phys. JETP 3, 976-7(1957) Jan.

The charge distribution of mesons in nucleon-antinucleon annihilation is calculated on the basis of isotopic spin conservation. The results are tabulated. (D.J.H.)

NIKISHOV, A.I.

3

1-Rak

1-HHcsd.

MULTIPLE FORMATION OF PARTICLES IN 5.3 Bev NUCLEON-NUCLEON COLLISIONS. V. M. Maksimenko and A. I. Nikishov (Academy of Sciences, USSR). Soviet Phys. JETP 4, 614-16(1957) May.

The distribution of nucleon-nucleon collisions at 5.3 Bev was calculated theoretically from the number of secondary particles, using the statistical theory of multiple-particle formation with and without the isobar states. A method was employed in the calculations with which statistical weights can be accurately calculated. The percentage statistical weights of the various processes and a classification by charged states are given. (M.H.R.)

RMK

NIKISHOV, A. I.

Defense of Dissertations Jan.-Jul 1957 (Vest. Ak Nauk SSSR, 27, No. 12, 1957,109-11)
Section of Physico-Mathematical Sciences

In the Inst. for Physics im. P. N. Lebedev the following applications for the degree Candidate of Physico-Mathematical Sciences

NIKISHOV, A. I. - Statistical Theory of the Formation of Particles at High Energies.
POPOV, Yu. N. - The Scattering of - Mesons by Nucleons in the Semiphenomenological and in the Highest Approximation of the Tamm-Dankov Method.
RAUTIAN, S. G. - Reduction Theory Concerning the Ideal Spectral Apparatus.
RUSANOV, V. D. - Investigation of the Injection Effect on the Betatron.
KHOKHLOV, Yu. K. - Investigation of the Theory of the Nuclear Photoeffect.

In the Main Astronomical Observatory the following applications for the degree of Doctor of Physico-Mathematical Sciences:

DROZDOV, S. V. - The Determination of Exact Declinations and Broad Fluctuations by Means of the Zenith Telescope According to the Zenith Program.
KHABIBULLIN, Sh. T. - The Physical Libration of the Moon. (Investigation of the Physical Libration of the Moon by the Photographic Method and Derivation of the Parameter f from the heliometric observations made in Kazan'.

for the degree of Candidate of Physico Mathematical Sciences:

GONTKOVSKAYA - V. T., - The Application of Modern Computation Technique in the Analytical Method of Sky Mechanics.
DUBOV, E. Ye. - The Peculiar Features of Internal Motions and of the Luminescence of Quiet Protuberances.
IVANIKOV, V. I. - On Methods of Photographic Photometry of Meteors.

53-2-1/9

AUTHOR: BELEN'KIY,S.Z., MAKSIMENKO.V.M., NIKISHOV,A.I., ROZENTAL',I.L.

TITLE: Statistical Theory of the Multiple Production of Particles. (Statisticheskaya teoriya mnozhestvennogo obrasovaniya chastits, Russian)

PERIODICAL: Uspekhi Fiz. Nauk, 1957, Vol 62, Nr 2, pp 1 - 36 (U.S.S.R.)

ABSTRACT: Lately, the fact that on the occasion of the collision of two high-energy particles always several mesons are produced, has been more and more experimentally confirmed. A logical interpretation of the phenomenon is lacking. The various experiments to set up a theory of multiple production of particles are based upon more or less good fundamental conditions, the accuracy of which can be confirmed only theoretically.

A theory promising a special success was proposed by FERMI, who, includes the statistical course in his theory. In the present paper this theory is derived, explained, and extended.

The following individual problems are solved theoretically:
1) Interaction between particles. Selection of the "volume".
2) Isotopic spin, equality of particles, distribution of the charge states.
3) The phase-"volume"

Card 1/2

Statistical Theory of the Multiple Production of Particles.

4) Distribution of the secondary particles according to momenta.
5) Comparison of theoretical with experimental data on N-N and $\bar{N}$-N collisions at energies of from 1 - 5 BeV.
6) Applicability of the statistical theory to processes which are connected with the annihilation of antinucleons.

Three additions from the conclusion of this paper consisting of 35 pages, in which the following is dealt with:
a) Probability of the state of charge in the statistical theory,
b) Charge distribution and "isotopic" invariance
c) Summaries, which result from the general expression of the "phase"-volume of a system with n-particles.

ASSOCIATION: Not given
PRESENTED BY:
SUBMITTED:
AVAILABLE: Library of Congress

Card 2/2

AUTHOR: Nikolaev, A. I., Rozental', I. L. E.

TITLE: On the Determination of the Energy of Fast Particles According to the Angular Distribution of Recoil Nuclei (Ob opredelenii energii bystryakh chastits po uglovomu raspredeleniyu prolektov otdachi)

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1957, Vol. 33, Nr 1, pp. 165 - 169 (USSR)

ABSTRACT: The present paper aims at investigating possible errors when determining the energy from the angular distribution of particles produced by the collision. The latter is carried in accordance with L. Landau's hydrodynamic theory of the multiple production of particles (Ref 2), which was extended for the case of a collision between a fast and a heavy particle; for this purpose the "tube model." ("trubochnaya" model') according to Rozental', Belen'kiy et al. (Refs 3,4) was used. If the connection between the angular distribution η and the energy E is not known, the ratio of the total number of observed star prongs 'N, and E must be used for the determination of E. If η and N are

Card 1/3

On the Determination of the Energy of Fast Particles SOV/[illegible]
According to the Angular Distribution of Reaction Products

given, the dispersion of energy values as well as the position of the maximum of the distribution function depends essentially on the ratio between η and N; (figures 1-3 show the course taken by the curves $p(E|\eta, N, \ldots$ dependence on E for different values of N and η). The distribution of probability is also influenced by the parameters of the collision model. In conclusion the authors thank G.B.Zhdanov for [illegible] several problems and Z.S.Maksimova and R.M.Suvorova for carrying out numerical computations. There are 4 figures and 8 references, [illegible] of which are Soviet.

ASSOCIATION: Fizicheskiy institut im. P.N.Lebedeva Akademii nauk SSSR (Physics Institute imeni P.N.Lebedev, AS USSR)

SUBMITTED: February 6, 1958

Card 2/3

NIKISHOV, A. I.

DETERMINING THE ENERGY OF FAST PARTICLES THROUGH ANGULAR DISTRIBUTION OF THE REACTION PRODUCTS

A. I. Nikishov, I. L. Rozental, and S. A. Slavatinskiy

In this paper an analysis is made of errors in determinations of the energy of the primary particle from the angular distribution of secondary particles. Due to fluctuations in the number of generated particles and in their angles of emergence and the sharp decrease in the spectrum of primary particles $\frac{dJ_1(E)}{dE} \sim E^{-2,7}$, the energy value may be systematically overestimated. The extent of this overestimation depends on the law of fluctuations in the number of particles and angles a very approximate manner. From an analysis of experimental data on shower energy determined from the angular distribution of secondary particles and measured directly, an attempt is made to determine the dispersion of distribution that characterizes the elementary act.

The error in the determination of the energy of showers produced on heavy nuclei is also considered. This error arises due to indetermination of the energy of showers produced on heavy nuclei is also considered. This error arises due to indeterminacy in the length of the nuclear tube with which the collision occurs.

Report presented at the International Cosmic Ray Conference, Moscow, 6-11 July 1959

21(7), 24(5) SOV/56-36-4 62/70

AUTHOR: Nikishov, A. I.

TITLE: On the Production of π- and μ-Mesons Pairs in the Annihilation of Positrons of High Energies (O rozhdenii π- i μ-mezonnykh par pri annigilyatsii pozitronov bol'shikh energiy)

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1959, Vol 36, Nr 4, pp 1323-1324 (USSR)

ABSTRACT: The investigation of the processes $e^+ + e^- \rightleftarrows \mu^+ + \mu^-$ and $e^+ + e^- \rightleftarrows \pi^+ + \pi^-$ is of interest in connection with the possible occurrence of a deviation from the local theory at distances of $\sim 10^{-13}$ cm; in the "Letter to the Editor" the author, by using the form factor $F(q^2)$ and an expression for the matrix element of reference 2 describing these processes, investigates the expressions for the differential cross section of these four processes (in the c.m.s.). (I. Ya. Pomeranchuk and V. B. Berestetskiy were the first to investigate meson-pair formation in the case of positron annihilation (Ref 2). The matrix element used by them for processes with pions is small at non-relativis-

Card 1/3

On the Production of π- and μ-Mesons Pairs in the Annihilation of Positrons of High Energies

tic velocities v_π. The maximum of angular distribution is in a plane that is vertical to the collision line) The expressions for the $d\sigma$ of the four reactions are explicitly written down. An integration between v_π and $v_\mu \approx c$ is furnished (for $q^2 = 4E^2$) by: $\sigma(e^+ + e^- \rightarrow \mu^+ + \mu^-) / \sigma(e^+ + e^- \rightarrow \pi^+ + \pi^-) = 4F_\mu^2 / F_\pi^2$ and for the decay probability of the system $(\mu^+ + \mu^- \rightarrow e^+ + e^-)$ it holds that $w = |\psi(0)|^2 (v_{rel}\sigma)_{v_{rel}=0} = 4 \cdot 10^{11}$ sec$^{-1} \approx w_{\mu^+ + \mu^-} \rightarrow 2\gamma$. ($v_{rel} = 2v_\mu$ = relative meson velocity; $\gamma = E/m$, E = particle energy, m = electron mass) Because of the smallness of v_π, the corresponding probability $w(\pi^+ + \pi^- \rightarrow e^+ + e^-)$ is infinitesimally small. If for all particles F = 1 is assumed, the total cross sections have the order of magnitude $10^{30} - 10^{31}$ cm^2. The author finally thanks I Ya. Pomeranchuk, I L. Rozental', and Ye. L. Feynberg for discussions. There are 2 Soviet references.

Card 2/3

SOV/56-36-4-62/70

On the Production of π- and μ-Mesons Pairs in the Annihilation of Positrons of High Energies

ASSOCIATION: Fizicheskiy institut im. P. N. Lebedeva Akademii nauk SSSR (Physics Institute imeni P. N. Lebedev of the Academy of Sciences, USSR)

SUBMITTED: January 8, 1959

Card 3/3

24(3), 21(5), 21(7)
AUTHOR: Nikishov, A. I. SOV/56-36-5-68/76

TITLE: A General Formula for the Electromagnetic Scattering of Two Different Particles With Spin 1/2 (Obshchaya formula dlya elektromagnitnogo rasseyaniya dvukh razlichnykh chastits so spinom 1/2)

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1959, Vol 36, Nr 5, pp 1604-1605 (USSR)

ABSTRACT: In view of the possibility of (μ,N) scattering tests, the author developed a generalization of the formula describing the scattering of high-energy electrons on nucleons (formula by Rozenblat); the generalization essentially consists in the fact that the mass of the inciding particles is taken into account, and that for these particles the general form factors $F\mu(q^2)$ and $\Phi\mu(q^2)$ are looked upon as holding good. If the differential cross section can be described by the equation $d\sigma/d\Omega = \frac{e^4}{(2\pi)^2 v_{rel}} |\vec{M}|^2 \varrho$,

Card 1/2 a quite general expression is derived for the matrix element

A General Formula for the Electromagnetic Scattering of Two Different Particles With Spin 1/2

SOV/56-36-5-66/76

$|\vec{M}|^2$; for the case in which the mass of the inciding particle may be considered to be zero, the (somewhat more simple) expression for $d\sigma/d\Omega$ is explicitly written down and it is shown that for $F_\mu = 1$ and $\Phi_\mu = 0$ it goes over into the Rozenblat formula if $\Phi_N = \varkappa F_{2N}/4M$ is put. The author thanks I. L. Rozental' for discussions. There are 2 references, 1 of which is Soviet.

ASSOCIATION: Fizicheskiy institut im. P. N. Lebedeva Akademii nauk SSSR (Physics Institute imeni P. N. Lebedev of the Academy of Sciences, USSR)

SUBMITTED: February 23, 1959

Card 2/2

S/058/61/000/010/019/100
A001/A101

3.2410

AUTHORS: Nikishov, A.I., Rozental', I.L., Slavatinskiy, S.A.

TITLE: On energy determination of fast particles from angular distribution of their interaction products

PERIODICAL: Referativnyy zhurnal. Fizika, no. 10, 1961, 96, abstract 10B503 ("Tr. Mezhdunar. konferentsii po kosmich. lucham, 1959, v. 1", Moscow, AN SSSR, 1960, 157 - 160)

TEXT: To determine energies of fast particles, a method is employed which is based on the analysis of angular distribution of secondary particles and very simple relations of the relativistic kinematics. Two assumptions are made in the method: 1) velocities of secondary particles are close to velocity of light; 2) dispersion of particles in the system connected with the gravity center, proceeds symmetrically relative to the plane perpendicular to the line of motion. A possible effect of non-symmetric showers on energy determination is estimated, and collision of a nucleon with a heavy nucleus is considered in detail.

L. Dorman

[Abstracter's note: Complete translation]

Card 1/1

NIKISHOV, A.I.

Statistical theory of multiple production of particles. Zhur.eksp.i teor.fiz. 38 no.2:509-512 F '60. (MIRA 14:5)

1. Fizicheskiy institut im. P.N.Lebedeva Akademii nauk SSSR.
(Particles (Nuclear physics))

NIKISHOV, A. I.

Radiative corrections for the scattering of μ-mesons on electrons. Zhur. eksp. i teor. fiz. 39 no.3:757-766 S '60. (MIRA 13:10)

1. Fizicheskiy institut imeni P.N. Lebedeva Akademii nauk SSSR.
(Mesons—Scattering)

NIKISHOV, A. I., GERASIMOVA, N. M. and ROZENTAL, I. L.

"Interaction of Nuclei and Photons of High Energies with a Thermal Radiation in the Universe"

Report presented at the International Conference on Cosmic Rays and Earth Storm, 4-15 September 1961, Kyoto, Japan.

27200

S/056/61/041/002/022/029
B111/B212

3.2410

AUTHOR: Nikishov, A. I.

TITLE: Absorption of high-energy photons in the universe

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 41, no. 2, 1961, 549-550

TEXT: This paper deals with the role of the $\gamma + \gamma \rightarrow e^+ + e^-$ reaction in the propagation of $10^{12} - 10^{13}$ ev photons from sufficiently distant intragalactic bodies. The author has found that for distances $\gtrsim 10^{25}$ cm a noticeable attenuation of the photon flux will occur. Estimations show that the contribution from interactions with nuclei and magnetic fields to the photon-flux attenuation is much smaller than the probability of pair production. This probability P (per cm of path) for a collision with a thermal photon is given by

$$P = 2(m^2/E)^2 \int_0^\infty n(\varepsilon)\varepsilon^{-2}\varphi(s_0)d\varepsilon;$$

Card 1/2

27200

S/056/61/041/002/022/028
B111/B212

Absorption of high-energy ...

$n(\varepsilon)$ is the density of thermal photons whose energy lies in the interval $d\varepsilon$. $s_0 = (E\varepsilon)/m^2$; $\varphi(s_0) = \int_1^{s_0} s\sigma(s)ds$. The propability reaches its maximum $(7 \cdot 10^{-27}$ cm$^{-1})$ at $E = 10^{12}$ ev and an energy density of 0.1 ev/cm^3 for the thermal quanta. The author thanks V. L. Ginzburg for a discussion. There are 1 figure and 5 references: 3 Soviet and 2 non-Soviet. The two references to English-language publications read as follows: Ref. 1: G. Cocconi, Proceedings of the Moscow Cosmic Ray Conference, 2, 309, 1960; V. Sekido, S. Yoshida, Y. Komiya, H. Heno, T. Murayama, there 3, p. 137, 140; M. P. Savedoff, Nuov. Cim., 13, 12, 1959; P. Morrison, Nuov. Cim. 7, 858, 1958. Ref. 3: E. Feenberg, H. Primakoff, Phys. Rev., 73, 449, 1948; C. W. Allen, Astrophysical Quantities, University of London, The Athlon Press, 1955, p. 228, 245

ASSOCIATION: Institut fizicheskikh problem Akademii nauk SSSR (Institute for Problems in Physics, Academy of Sciences USSR)

SUBMITTED: March 8, 1961

Card 2/2

NAROZHNYY, N.B.; NIKISHOV, A.I.; RITUS, V.I.

Quantum processes in the field of a circularly polarized electromagnetic wave. Zhur. eksp. i teor. fiz. 47 no.3:940 S '64. (MIRA 17:11)

1. Fizicheskiy institut imeni Lebedeva AN SSSR.

NIKISHOV, A.I.; RITUS, V.I.

Nonlinear effects in Compton scattering and pair production due to absorption of several photons. Zhur. eksp. i teor. fiz. 47 no.3:1130-1133 S '64. (MIRA 17:11)

1. Fizicheskiy institut imeni Lebedeva AN SSSR.

S/823/62/000/000/001/007
B125/B102

AUTHORS: Nikishov, A. I., Rozental', I. L.

TITLE: The interaction and the hypothetical structure of muons

SOURCE: Nekotoryye voprosy fiziki elementarnykh chastits i atomnogo yadra. Ed. by V. D. Mikhaylov and I. L. Rozental'. Mosk. inzh.-fiz. inst. Moscow, Gosatomizdat, 1962, 48-71

TEXT: This is a review of papers published since 1939 on the interaction of muons and on hypotheses as to muon structure. The following are the most essential facts: Muons have spin 1/2. The first radiative correction to the magnetic moment is consistent with experimental data. Accelerator experiments showed no scattering anomalies greater than 10^{-29} cm^2 per nucleon in the transfer of momenta less than 400 Mev. Muons can be described by Dirac's equation. It is still unknown why muons and electrons have different masses. The production of muons at very high energies ($\sim 10^{16}$ ev) should be studied and the following experiments are recommended: more precise measurement of the magnetic moment, investigation into the production of muon pairs with transfer of large momenta, determination of

Card 1/2

S/823/62/000/000/001/007
B125/B102

The interaction and the...

the form factors of protons and muons from πp scattering, experiments with oppositely directed beams of electrons and positrons, scattering of muons from electrons with transfer of a large transverse momentum, investigation of secondary-particle interaction ranges in nuclear collisions with $E_0 \gtrsim 10^{15}$ ev, search for anomalously scattered muons having an energy of more than 1 Bev and a cross section of 10^{-31} cm^2 per nucleon, underground precision measurements of bursts in ionization chambers at great depths. There are 6 figures.

Card 2/2

BR

ACCESSION NR: AP4019248 S/0056/64/046/002/0776/0796

AUTHORS: Nikishov, A. I.; Ritus, V. I.

TITLE: Quantum processes in the field of a plane electromagnetic wave and in a constant field. I

SOURCE: Zhurnal eksper. i teor. fiz., v. 46, no. 2, 1964, 776-796

TOPIC TAGS: quantum process, photon emission, pair production, single photon annihilation, electromagnetic wave propagation, crossed fields, laser beam

ABSTRACT: This is the first of two articles devoted to research undertaken in view of the possibility uncovered by the use of powerful laser light beams to investigate different quantum interactions between particles in strong electromagnetic fields. The effect of the field of a plane electromagnetic wave and of a constant electromagnetic field on various quantum phenomena is treated by a general

Card 1/3

ACCESSION NR: AP4019248

method of quantum-transitions which takes exact account of the interaction between the charged particles and the electromagnetic field of the wave. General formulas are obtained for the probabilities of emission of a photon by an electron, pair production by a photon, and single-photon annihilation of an electron and positron in the field of an electromagnetic wave. These expressions are investigated for two limiting cases, depending on the value of the parameter ea/m (e -- electron charge, m -- electron mass, a -- amplitude of potential), which plays a decisive role in this theory. When $ea/m \ll 1$ the expressions for the probability go over into the corresponding perturbation-theory probabilities and the plane wave assumes the role of an individual photon. When $ea/m \gg 1$, the probabilities of the processes reduce effectively to the probabilities of processes in a constant field with orthogonal and equal electric and magnetic components. The probabilities of the processes in this field are investigated in detail. The total probability being a relativistic and gauge-invariant quantity, depends on a single parameter $\chi^2 =$

Card 2/3

ACCESSION NR: AP4019248

$= e^2(F_{\mu\nu}p_\nu)^2/m^6$, ($p_\nu$ -- particle momentum and $F_{\mu\nu}$ -- generalized field). The conditions under which the exact formulas are applicable are also discussed. It is shown that the results obtained agree with those of others under certain conditions. "In conclusion we are grateful to I. Ye. Tamm, V. L. Ginzburg, and D. A. Kirzhnits for fruitful discussions of this work and for valuable remarks." Orig. art. has: 3 figures and 70 formulas.

ASSOCIATION: Fizicheskiy institut im. P. N. Lebedeva AN SSSR (Physics Institute, AN SSSR)

SUBMITTED: 30Jul63 DATE ACQ: 27Mar64 ENCL: 00

SUB CODE: PH NO REF SOV: 007 OTHER: 005

Card 3/3

ACCESSION NR: AP4037591 S/0056/64/046/005/1768/1781

AUTHOR: Nikishov, A. I.; Ritus, V. I.

TITLE: Quantum processes in the field of a plane electromagnetic wave and in a constant field. II

SOURCE: Zhurnal eksper. i teor. fiz., v. 46, no. 5, 1964, 1768-1781

TOPIC TAGS: quantum electrodynamics, quantum process, elementary particle, pi meson, decay probability

ABSTRACT: The effect of the field of a plane electromagnetic wave on quantum processes occurring in the absence of the field are considered. The main features of such a process are analyzed for the particular case of the $\pi \to \mu + \nu$ decay. A general formula for the probability of the $\pi \to \mu + \nu$ decay in the field of the wave is investigated for various limiting cases defined by the magnitude of the parameters ea/m and ea/ω (a — wave potential amplitude). When ea/m and ea/ω are less than 1, the formula yields the corresponding

Card 1/2

L 11961-65 EWT(1)/EEC(t)/EEC(b)-2 AFWL/RAEM(a)/ESD(c)/ESD(gs)
ACCESSION NR: AP4046410 S/0056/64/047/003/0930/0940

AUTHORS: Narozhny*y, N. B.; Nikishov, A. I.; Ritus, V. I.

TITLE: Quantum processes in the field of a circularly polarized electromagnetic wave

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 47, no. 3, 1964, 930-940

TOPIC TAGS: photon emission, pair production, pi meson product, polarized electromagnetic wave, circular polarization

ABSTRACT: The authors consider the effect of the field of a circularly polarized electromagnetic wave of arbitrary intensity on various quantum processes. The probability and intensity of photon emission by an electron, the probability of pair production by a photon, and the probability of the $\pi \to \mu + \nu$ decay in the field of such a wave are determined. The expressions derived for the proba-

Card 1/3

bilities are simpler than the corresponding expressions for a linearly polarized wave because they contain one less integral and the integrand is expressed in terms of ordinary Bessel functions. This makes it possible to investigate in greater detail the intermediate region between the domain of perturbation theory and the constant-field region. Among the questions that can be clarified are the dependence of the probability of the process on the frequency of the wave if the field intensity is maintained constant, the probability distribution with respect to the number of photons absorbed from the wave or emitted into the wave, and others. "In conclusion we thank V. L. Ginzberg and Ye. L. Feinberg for a discussion, and also Z. S. Maksimova, A. T. Matachun, and L. V. Pariyskaya for the numerical calculations." Orig. art. has: 7 figures and 22 formulas.

ASSOCIATION: Fizicheskiy institut im. P. N. Lebedeva Akademii nauk SSSR (Physics Institute, Academy of Sciences SSSR)

L 11012-65 EWA(k)/EWT(1)/EEC(k)-2/EEC(b)-2/EWP(k)/T/EWA(m)-2 P1-4/Po-4
IJP(c)/ASD(a)-5/AFWL/SSD/ESD(gs)/ESD(t) WW/JHB
ACCESSION NR: AP4046433 S/0056/64/047/003/1130/1133

AUTHORS: Nikishov, A.I.; Ritus, V. I.

TITLE: Nonlinear effects in Compton scattering and pair production, connected with absorption of several photons (B)

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 47, no. 3, 1964, 1130-1133

TOPIC TAGS: Compton scattering, pair production, photon absorption, annihilation, nonlinear effect

ABSTRACT: This is a continuation of earlier work by the authors (ZhETF v. 46, 776, 1964), dealing with photon emission induced by an electron, pair production by a photon, and single-photon annihilation of an electron and positron in the field of a polarized electromagnetic wave of arbitrary intensity. The interest in this problem is due to the impending possibility of using laser beams to measure

Card 1/2

ZATSEPIN, G.T.; NIK[illegible]HOV, [illegible]

[illegible]ole of the [illegible] asymmetrical streams. [illegible] 1824-1825 N '64.

1. Fizicheskiy institut im. [illegible]

L 21733-66

ACC NR: AP6004944

ionization probability can be readily obtained. The angular and energy distributions of the outgoing particles, the distributions over the number of absorbed photons, and the dependence of the probability on the polarization of the electromagnetic wave and polarization of the bound system are examined by means of this approach. The ionization probability is obtained by quantum mechanical methods which leads to several important physical conclusions about the process, and make it possible to separate the effect of the Coulomb forces in the ionization by a constant field. The total ionization probabilities in the fields of linearly and circularly polarized waves are obtained, and also the distributions of the ionization probabilities over the charged-particle emission angles and over the number of photons absorbed from the field. A relativistically gauge-invariant model is considered, describing the splitting of a neutral or charged system into two particles of arbitrary masses. Conditions under which the splitting probability in a weak field depends substantially on the polarization of the initial are indicated. The results are applicable to the description of multiquantum splitting of negative and molecular ions. Orig. art. has: 39 formulas [02]

SUB CODE: 20/ SUBM DATE: 12Aug65/ ORIG REF: 006/ OTH REF: 004

Card 2/2

L 23392-66 EWA(h)/EEC(k)-2/EWT(l)/EWT(m)/EWP(k)/FBD/T/EWP(t) IJP(c) WG/JD
ACC NR: AT6009315 SOURCE CODE: UR/2504/65/031/000/0139/0177

AUTHORS: Basov, N. G.; Strakhovskiy, G. M.; Nikitin, A. I.; Nikitina, T. F.; Tatarenkov, V. M.; Uspenskiy, A. V.

ORG: Physics Institute im. P. N. Lebedev, Academy of Sciences, SSSR (Fizicheskiy institut Akademii nauk SSSR)

TITLE: Problems of construction and investigation of the operation of a hydrogen-atom-beam maser

SOURCE: AN SSSR. Fizicheskiy institut. Trudy, v. 31, 1965. Kvantovaya radiofizika (Quantum radio physics), 139-177

TOPIC TAGS: maser theory, gaseous state maser, hydrogen, maser, quantum generator, excited state, stimulated emission

ABSTRACT: The authors review the hitherto published work on the theory and construction of hydrogen-beam masers, and discuss the construction, choice of optimal parameters, and preliminary operating results of a maser using the transition ($F = 1$, $m_F = 0$) -- ($F = 0$,

Card 1/2

L 23392-66

ACC NR: AT6009315

$m_F = 0$) at 1420.405 Mcs. Two installations of different construction are described. The operation of the maser in the underexcited mode is investigated. A procedure for determining the lifetimes of the excited atoms in the storage bulb are described. The apparatus was operated with an axial resonator magnetic field of 100 -- 300 mOe. The dependence of the amplitude and frequency of generation on the various parameters was investigated and it was found that the greatest contribution to the maser instability is due to the instability of the supplementary magnetic field and the detuning of the resonator as a result of thermal expansion. Methods of overcoming these difficulties are discussed. The section headings are: Introduction. I. Construction and adjustment of hydrogen-beam maser. 1. Operating principle of hydrogen-beam maser. 2. Vacuum system. 3. Atomic-beam sources. 4. State sorting and atomic-beam focusing. 5. Detection of hydrogen-atom beam. Methods of adjusting the apparatus. 6. Bulb for accumulation of atomic hydrogen. 7. Cavity resonator. 8. Radiation receiver for 1420 Mcs frequency. II. Investigation of operation of hydrogen-beam maser (preliminary results). 1. Investigation of stimulated emission of atomic hydrogen at 1420.4 Mcs.

Card 2/3

L 23392-66

ACC NR: AT6009315

9

2. Characteristics of hydrogen-beam maser. Conclusions. The authors thank A. M. Prokhorov and A. N. Oraevskiy for a discussion of the results and valuable advice, and L. P. Yelkina, G. A. Yelkin, A. N. Ponomarev, A. A. Ul'yanov, L. M. Zak, N. A. Begun, and O. S. Lysogorov for help with the work. Orig. art. has: 28 figures and 69 formulas.

SUB CODE: 20/ ORIG REF: 021/ OTH REF: 034 / SUBM DATE: none

Card 3/3 JO

L 22951-66 EWP(k)/EWT(d)/EWT(m)/EWP(h)/T/EWP(l)/EWP(v)/EWP(t) IJP(c) DJ/JD

ACC NR: AP6007902 SOURCE CODE: UR/0420/65/000/002/0112/0113

AUTHOR: Nikishov, A. L

32

B

ORG: None

TITLE: Increasing the durability of worm involute-gear cutters

SOURCE: Samoletostroyeniye i tekhnika vozdushnogo flota, no. 2, 1965, 112-113

TOPIC TAGS: gear cutting machine, metal machining, machine tool

ABSTRACT: The Khar'kov Aviation Institute (Khar'kovskiy aviatsionnyy institut) has conducted comparative durability tests of worm involute-gear cutters for in-cut milling and out-cut milling in a broad range of changes of the back-rake angles. The following were used: a 5A326 "Komsomolets" gear-cutting machine; the diameter of the worm cutter was 75 mm; the module of the cutter was 2.54 (single thread); the cutting speed was 39.2 m/min; the feed was 2 mm/rev; the worked piece was of brand 45 steel; and the criterion of the blunting of the machine along the tool flank was 0.4 mm. Figure 1 shows the results of the durability tests. An analysis shows that the highest durability during in-cut milling is $\gamma = 15\text{-}18^\circ$. The cutter operated for 470 min. before blunting. However, a cutter with similar specifications working by out-cut milling performed for 100 min. At angles $\gamma = 0$ the cutter performed in-cut and out-cut milling for 292 and 140 min., respectively, at cutting speeds of 40 m/min. The results of the investigations will yield the best effect in milling toothed

Card 1/2

L 22951-66

ACC NR: AP6007902

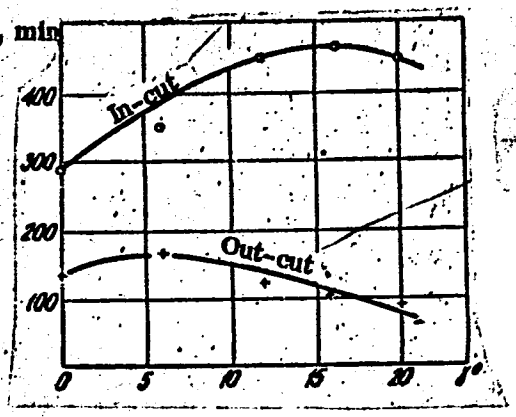


Fig. 1 Dependence of the durability of worm involute-gear cutters on the back-rake angle γ.

gears of large diameter and module, e.g., in the manufacture of toothed wheels for the reducing gears of power steam turbines. Orig. art. has: 3 figures.

SUB CODE: 13/ SUBM DATE: none

Card 2/2

POTEMKIN, G.A.; NIKISHOV, A. S. ; RINK, L. P.; YAROV, I. A. ; LIVSHITS, D. M..

Engrs.

The testing of samples under variable temperatures & pressures

Vest Mash p. 29, Sep 51

NIKISHOV, A.S., inzhener; SUTINA, Yu.A., inzhener; PASTUKHOVA, L.S., inzhener.

Mechanical and physical properties of steel 18KhNVA, 30KhGSA and 30KhMA at higher temperatures. Vest.mash. 33 no.4:52 Ap '53. (MLRA 6:5)
(Steel--Analysis)

NIKISHOV, A.S., inzhener; KUHGANOV, G.V., inzhener; SUTINA, Yu.A., inzhener.

Heat temperature in hardening alloy AK-4. Vest.mash. 33 no.10:58-59 O '53. (MLRA 6:10)
(Alloys)

Nikishov, A.S.

129-12-10/11

AUTHORS: Nikishov, A.S., Kurganov, G.V. and Yarzhemksaya, N. I., Engineers.

TITLE: Influence of deep anodizing on the fatigue strength of the aluminium alloys AK-4 and BA-17. (Vliyaniye glubokogo anodirovaniya na ustalostnuyu prochnost' alyuminiyevykh splavov AK-4 and VD-17)

PERIODICAL: Metallovedeniye i Obrabotka Metallov, 1957, No.12, pp. 66-68 (USSR)

ABSTRACT: The Institute of Physical Chemistry, Ac.Sc., U.S.S.R. (Institut Fizicheskoy Khimii AN SSSR) has studied the physical and chemical properties of thick anodised layers obtained at below freezing point temperatures in a sulphuric acid electrolyte. Thus produced films have a high hardness and wear resistance, a high porosity, lubricant capacity, heat resistance, good anti-corrosive properties and also good thermal and electrical insulation properties. The authors considered it of great interest to study the influence of deep anodising on the fatigue strength of aluminium components operating under conditions of vibration and, therefore, the aim of the work described in this paper was to establish the

Card 1/2 influence of 70 to 80 μ thick anodic films on the fatigue